ENGINEERING NEWS-RECORD

Ribbon cut on key link in N. Y. Thruway *p. 25*

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E B POWER
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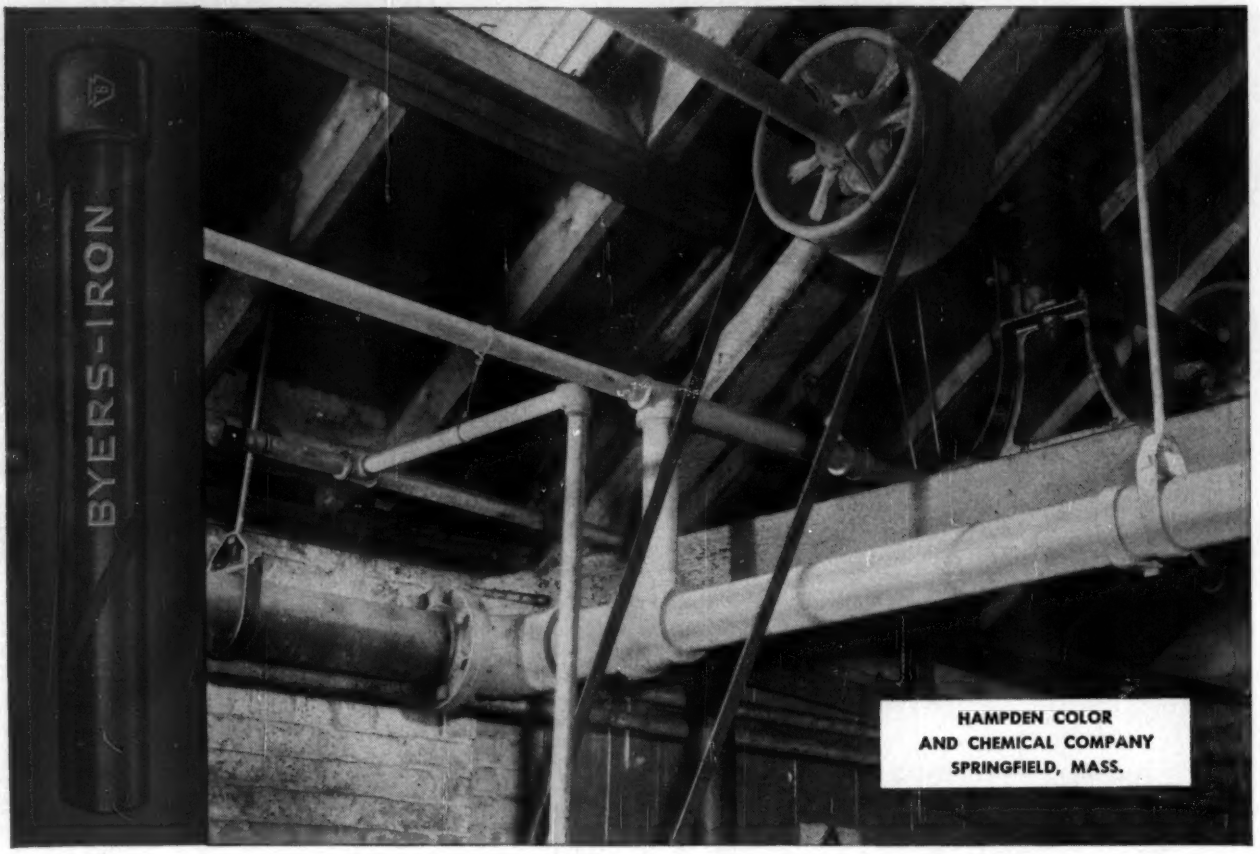

This WROUGHT IRON PIPE installation has SAVED the cost of 4 replacements... *and it's still going strong*

In 1941, the Plant Superintendent of Hampden Color & Chemical Company, Springfield, Massachusetts, started looking for an answer to a recurring piping failure problem.

His maintenance records charted the life-span of the piping material he had been using for the dry-sprinkler-pipe system at about three years. There was no question about the severe corrosive conditions that constantly threatened the service. The system, located on the ceiling of the dye room, collected dye dust which contained a large percentage of sodium chloride. Condensation created by the operation in the dye room kept the pipes wet. The result was a weak "salt bath" which caused outside corrosion.

After careful investigation of performance records in services where corrosive conditions were similar to those affecting his sprinkler-lines, the Plant Superintendent selected wrought iron pipe for replacement. The first quantity was installed in 1941, followed by a greater tonnage in 1943.

The installation was recently checked. Records reveal that the wrought iron pipe has given trouble-free service, and is still in good condition.

The economies are clear. Figured in years of service, the wrought iron pipe has already saved the cost of 4 to 5 replacements. Added to this are the benefits of uninterrupted operation that means greater plant efficiency.

The economical performance of wrought iron paved the way for extended use of the material by Hampden Color & Chemical Company. Domestic water lines, boiling tank piping, and more recently, a new smokestack, are all safeguarded with time-tested wrought iron.

Our bulletin, *Piping for Permanence*, tells the story of wrought iron, why it resists corrosion longer, and illustrates the many applications where it is serving and saving. Write for your copy.

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WROUGHT IRON

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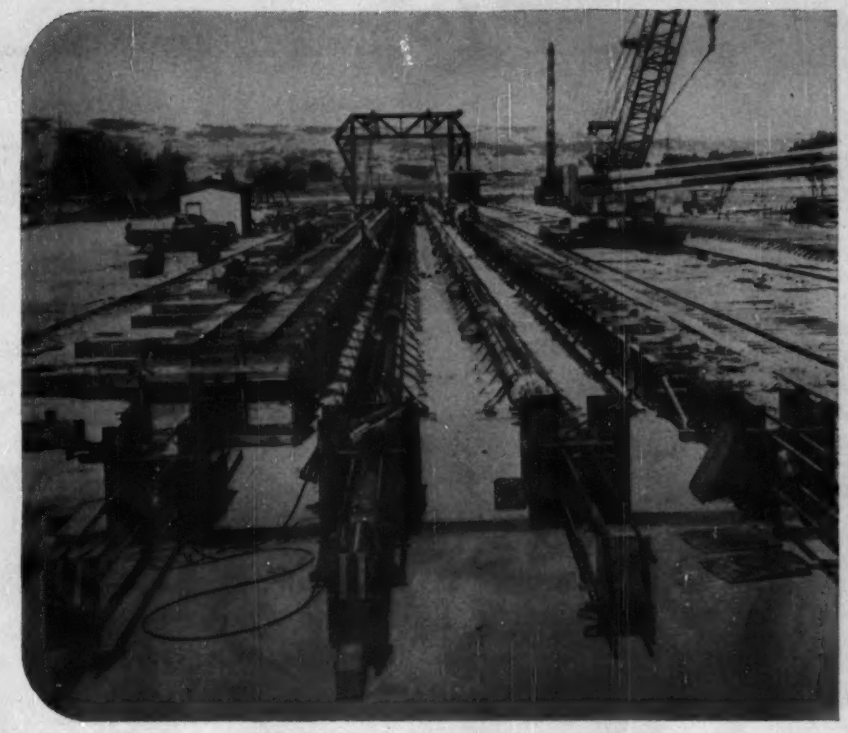
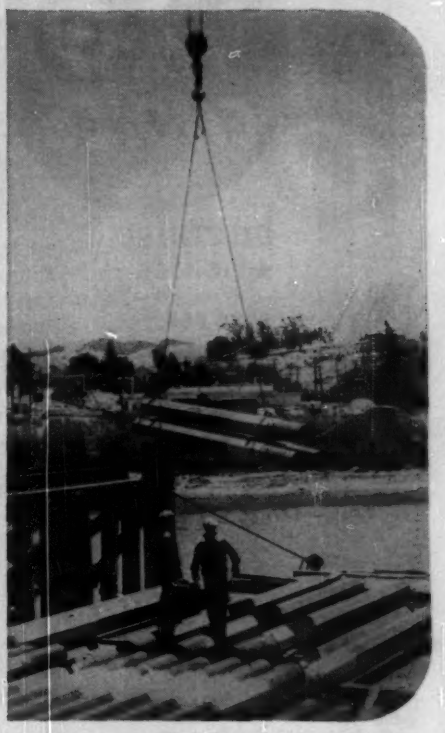
PRESTRESSED CONCRETE PILES

CUT MARINE TERMINAL COST!





(Above, left) Casting yard of the contractor, Ben C. Gerwick, Inc., San Francisco, consists of a 4-line 500' long bed and a 3-line 340' bed. Here the 500' bed is producing 23' and 28' long pile tops on 3 lines. On the left line piles are being steam cured. Strands are being tensioned in the next line while the third line is ready for release of tension. Fourth line has square pretensioned concrete piles for another project.

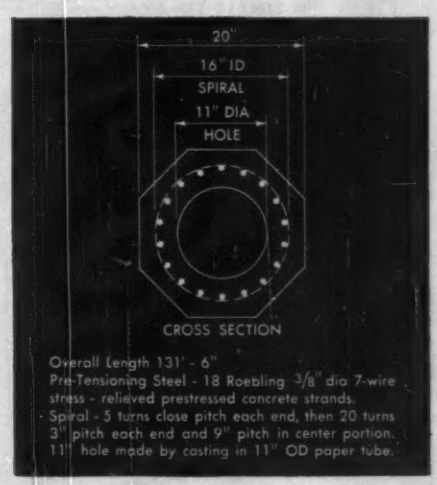
(Above) Each 14" octagonal pile top is cast complete with pipe section for splicing to timber pile.

CONVERTING Piers 15 and 17 into a unified shipping terminal, the Port of San Francisco's Board of State Harbor Commissioners, Mr. S. S. Gorman, Chief Engineer, will soon be using 20" prestressed concrete piles 131'6" long. They will be of the pretensioned, bonded type using 18 Roebling ⅜" dia. 7-wire stress relieved prestressed concrete strands.

Now being driven are timber piles up to 104' long topped with 14" octagonal prestressed members 23' to 28' long. The pile splice will be 10' below mud line. These tops are pretensioned with 11 Roebling ⅜" dia. prestressed concrete strands. Both types of pretensioned piles use 4300 P.S.I. concrete which is obtained in 24 hours with steam curing.

Both the long and composite prestressed piles were chosen over regular precast concrete and Gunited timber piles, respectively, for one reason—lower "in place" cost!

Whether it's piles, girders or slabs; bridges or entire buildings, Roebling engineers know how to get peak efficiency with prestressed concrete. And they will be glad to supply you with full information of tensioning materials and fabricating methods. Write Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.



Overall Length 131' - 6"
Pre-Tensioning Steel - 18 Roebling ⅜" dia 7-wire stress - relieved prestressed concrete strands.
Spiral - 5 turns close pitch each end, then 20 turns 3" pitch each end and 9" pitch in center portion.
11" hole made by casting in 11" OD paper tube.

ROEBLING

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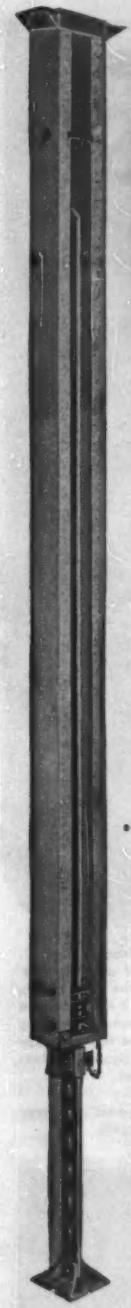

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Robert F. Boger
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Sure! You can handle a lot of jobs with a light pullshovel rig but what do you do when you get up against digging like this? Here is one of the places where you need the rugged, heavy-duty construction characteristic of Northwest design.

Your Northwest Pullshovel is built to help you meet all conditions. It's a *real* Rock Pullshovel and it handles a rugged operation with the minimum of difficulty. And remember! If you have a *real* Rock Pullshovel you're sure of a higher output than with the ordinary rig when the trench cuts like cheese. Buy for the toughest job you expect to hit! Ask for the full story on a Northwest.

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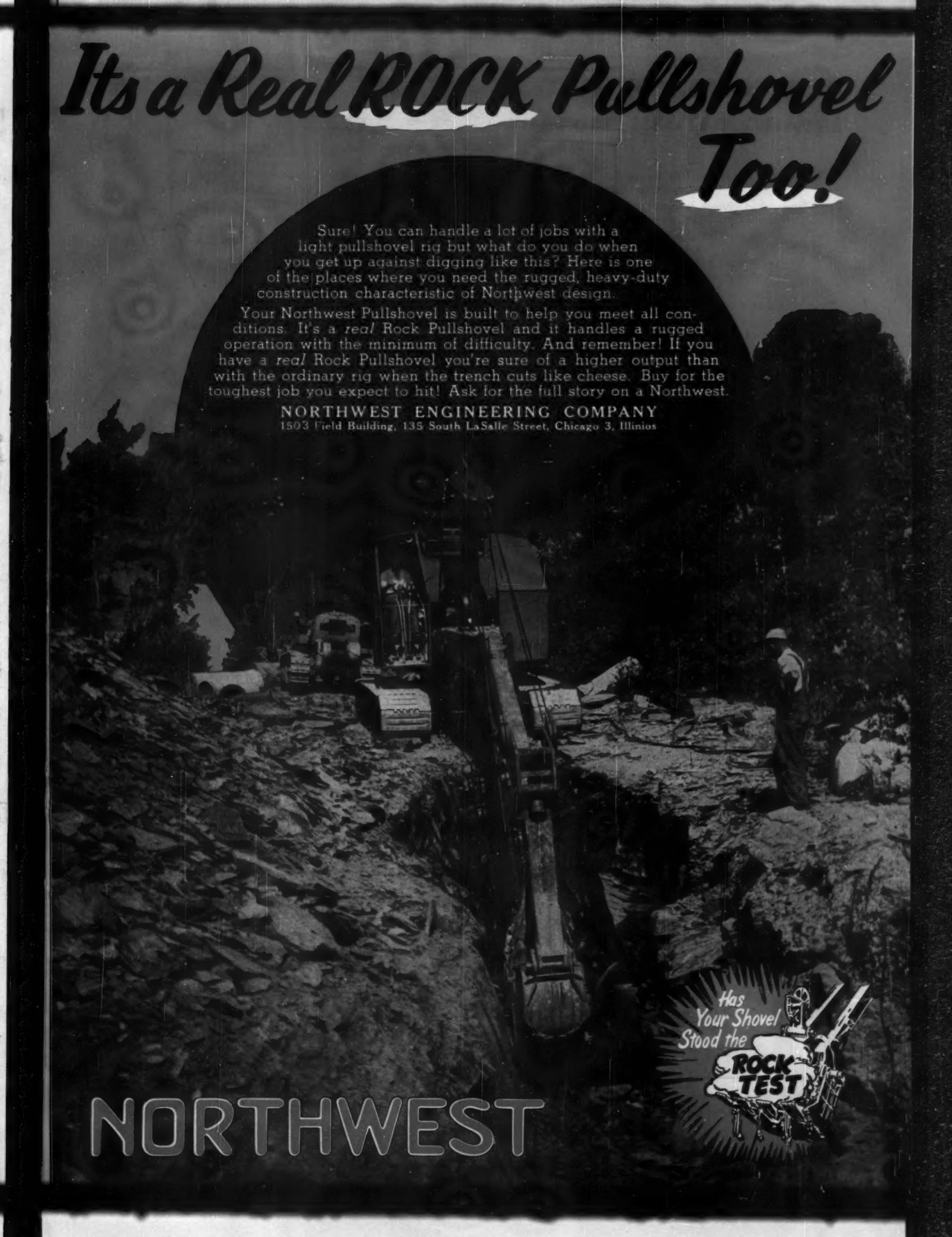
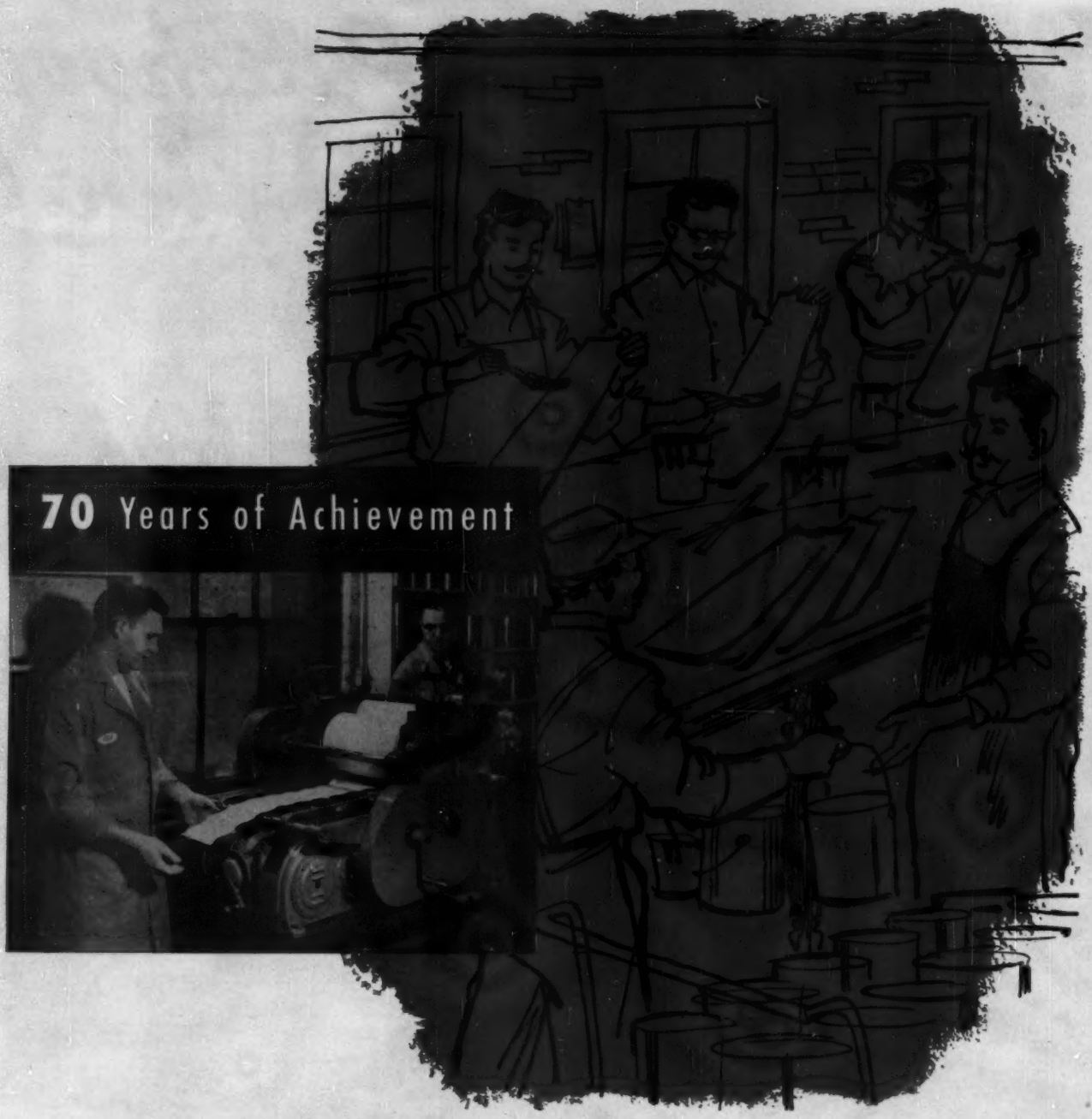


NORTHWEST



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The quickest, cheapest way to locate and repair utility breaks is to walk right up to the trouble zone and go to work.

That's the way these lines, supplying heat, chilled water, light, and power to new Bakersfield College building, will be maintained.

American Vitrified Products supplied several thousand feet of specially manufactured concrete pipe for this project. Steel bands ⅜" thick, 3" wide were welded to the rim cage and wrapped around the inner core so they would be exposed on the inside surface when the pipe was completed.

Supporting brackets, holding the utility lines, were then welded to the bands on eight foot centers.

Complicated assignments such as this are everyday jobs for American. Years of experience and technical know-how guarantee customer satisfaction.

Concrete pipe is just one of the many products manufactured in our plants across the nation. We also produce the new Amvit Jointed Clay Pipe, flue liners—both glazed and unglazed, and clay liner plates.

For more information, write or call American Vitrified Products Co., National City Bank Building, Cleveland, Ohio, or our office nearest you.

This pipe was specially designed to hold supporting brackets for the utility lines.

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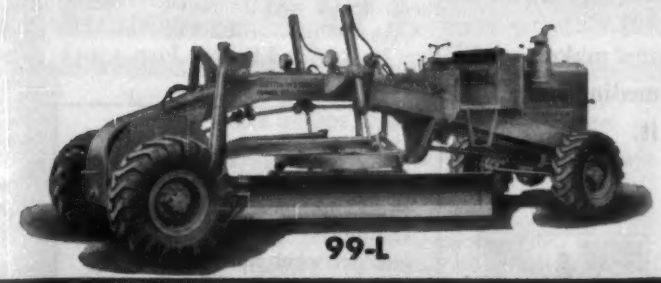

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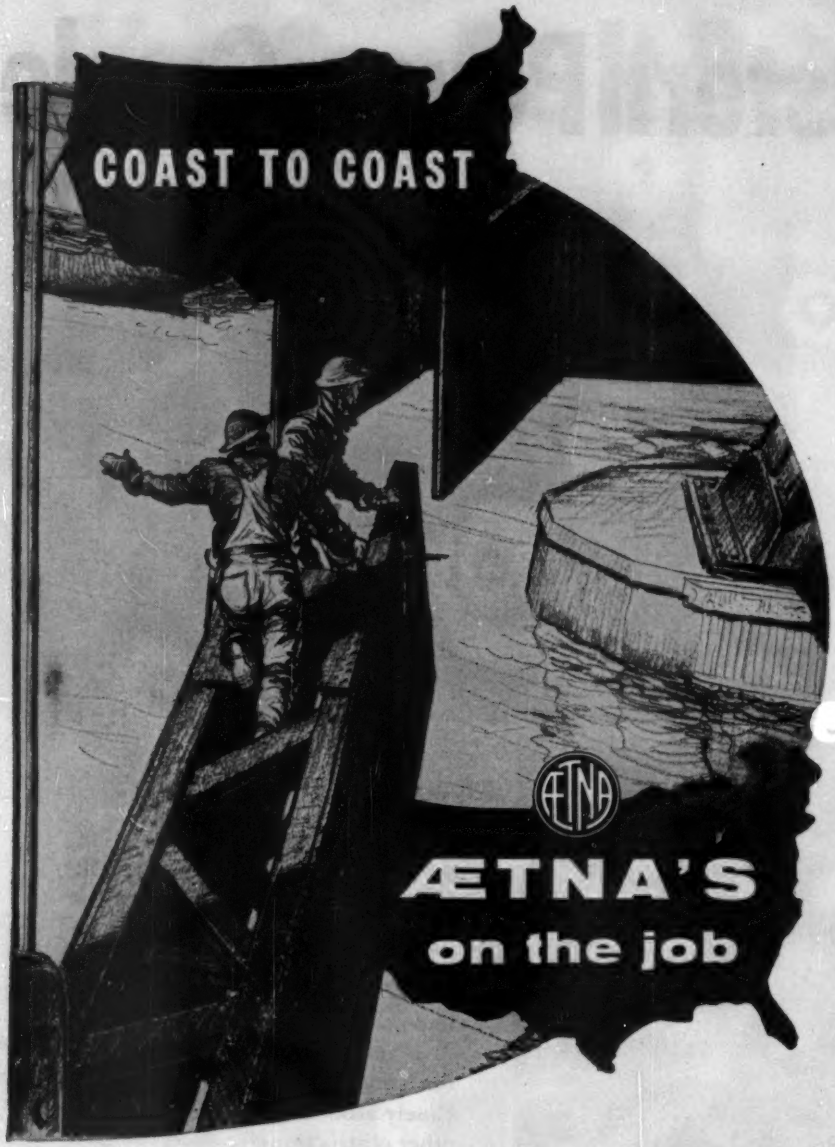

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Reader Comment

Package Deals

SIR—Your Editor's Note to the comments from R. F. Legget (ENR Nov. 17, 1955, p. 14) on the article, "Bringing Industry to the Suburbs" (ENR Oct. 13, 1955, p. 45) states that the article does not represent editorial opinion (even though written by an associate editor), and that there is a large school of contrary opinion on the merits of the package deal. On behalf of the Association of Consulting Engineers of Canada, I wish to express a contrary opinion.

After reading the article, one cannot help expressing the thought that it really belongs to the advertising pages, but in view of the manner in which reading matter and advertising are now combined in your magazine, the difference between them is often not apparent at first sight.

Many of the package deals referred to are undertaken by firms unable, or unwilling, to finance their own buildings, so that it becomes purely a rental proposition. The contractor (or his financial associates) owns the plant and is really a landlord. It is perfectly natural that the contractor should build it himself without competition. The tenant seldom (if ever) exercises any purchase option, and has little freedom in changing it. With the rapid development taking place today in many manufacturing processes, the changes necessary to provide efficient production may be of a major nature.

When the manufacturer is able to finance the building himself and retain ownership, the situation is entirely different. Many an independent consulting engineer has built up his practice on the basis that he has a definite service to render his client; viz, the client can have detailed plans and specifications prepared, obtain competitive tenders, pay his consultant a proper fee and still save money over the cost of a package deal.

Consultants will tell you that when they have invited tenders from a pack-

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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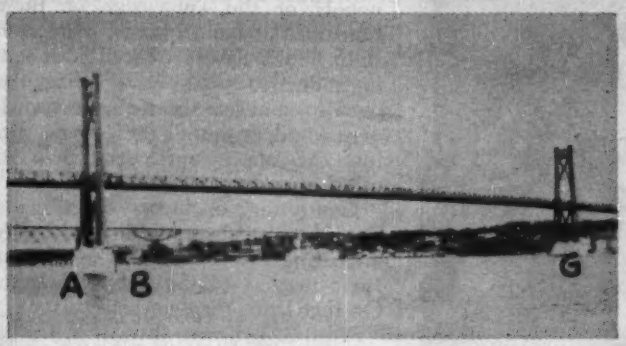
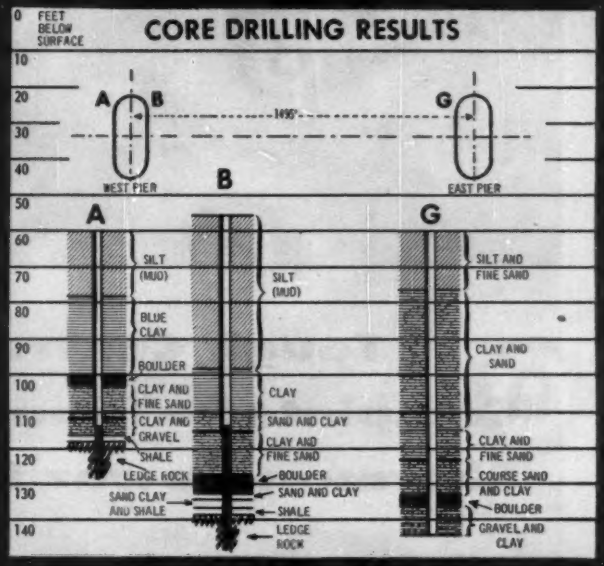
Our test drilling services span the years... span the continent!

From the Hudson River



Test borings for piers, anchorage sites and approaches of MID-HUDSON BRIDGE, Poughkeepsie, New York.

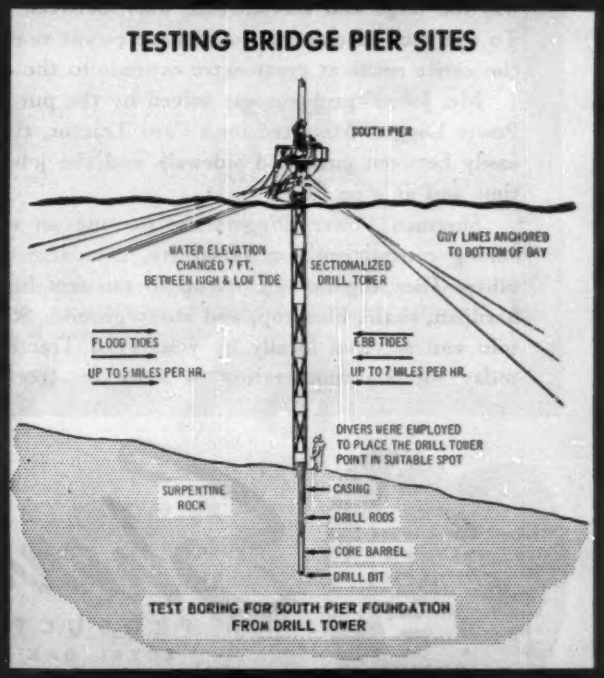
The E. J. Longyear Co. diamond drilled 20 holes for a total of 2377 feet on the river and on land. The drilling disclosed deep, soft ground on the river bottom, which led to the use of open caissons for pier foundations. The bridge is 3,000 feet long between anchorages, with a main span of 1495 feet between centers of the towers.



. . . to the Golden Gate

Test borings for piers and anchorage site of GOLDEN GATE BRIDGE, San Francisco, California.

- A total of 16 holes, ranging in depth from 15 to 141 feet was drilled in 90 days.
- Three holes were sunk at the Fort Point anchorage site, six at the South Pier site, four at the North Pier site and three at the Marin Anchorage site.
- Cores 2" in diameter were recovered, revealing serpentine formations as foundation for the south pier, and compact greenstone or diabase as foundation for the north pier.
- The work was carried out during winter months under extremely severe and difficult conditions.


TESTING BRIDGE PIER SITES
SOUTH PIER
WATER ELEVATION CHANGED 7 FT. BETWEEN HIGH & LOW TIDE
SECTIONALIZED DRILL TOWER
GUY LINES ANCHORED TO BOTTOM OF BAY
FLOOD TIDES
UP TO 5 MILES PER HR.
EBB TIDES
UP TO 7 MILES PER HR.
DIVERS WERE EMPLOYED TO PLACE THE DRILL TOWER POINT IN SUITABLE SPOT
SERPENTINE ROCK
CASING
DRILL RODS
CORE BARREL
DRILL BIT
TEST BORING FOR SOUTH PIER FOUNDATION FROM DRILL TOWER

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Tough Contract Completed—Thanks to a Sherman Power Digger!

Mr. K. M. Johns, earthmoving contractor from Westminster, South Carolina, was in trouble. After contracting with a neighboring city to lay an eight inch supplementary water line through the center of town, he discovered that his excavating equipment was too large and unwieldy to work between curb and sidewalk. To use such machinery would have meant re-routing traffic along the entire route at great extra expense to the city.

Mr. Johns' problem was solved by the purchase of a Sherman Power Digger. Mounted on a Ford Tractor, the unit maneuvered easily between curb and sidewalk and the job was completed on time and at a profit.

Sherman Power Diggers are earning an enviable reputation among contractors for versatility, compactness and maneuverability. They dig faster . . . up to ten feet below grade in mud, hardpan, shale, blacktop, and stony ground. Sherman Diggers are sold and serviced locally by your Ford Tractor Dealer. See him today for a demonstration or write for free Bulletin No. 1431.

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. . . Reader Comment

age deal contractor, based on detailed plans and specifications, the package dealers quotation is seldom the low bid. True, anyone can build the building cheaper by using less material or those of a cheaper manufacture.

The article speaks of the service the firm being eulogized renders by investigating subsoil, rail facilities, power, gas, water supply and sewage disposal. However, they have no monopoly of the knowledge of these fundamental requirements. Any consulting engineer experienced in designing industrial plants fully realizes the need for and has the requisite knowledge to advise on all these angles before the site is purchased when so called upon.

Consulting engineers in Canada have mainly advanced themselves by improving the service they render in these matters to the public at large. On that basis, they are here to stay.

EDGAR A. CROSS
President
The Association of Consulting Engineers of Canada
Montreal, Quebec

CALENDAR

Nuclear Engineering and Science Congress, sponsored by the Engineers Joint Council, Public Auditorium, Cleveland, O., Dec. 12-16.

American Road Builders' Association, annual convention, Miami Beach Auditorium, Miami Beach, Fla., Jan. 11-14.

Highway Research Board, annual meeting, Sheraton-Park Hotel, Washington, D. C., Jan. 17-20.

American Society of Heating and Air-Conditioning Engineers, annual meeting, Sheraton-Gibson Hotel, Cincinnati, O., Jan. 23-25.

National Association of Home Builders, annual convention-exposition, Conrad Hilton and Sherman Hotels, and the Coliseum, Chicago, Ill., Jan. 22-26.

Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Ill., Jan. 29-Feb. 2.

Society of American Military Engineers, annual technical meeting, Palmer House, Chicago, Ill., Feb. 9-10.

Association of Asphalt Paving Technologists, annual meeting, Hotel Cleveland, Cleveland, O., Feb. 13-15.

Associated General Contractors of America, national convention, Waldorf-Astoria Hotel, New York, N. Y., Feb. 13-16.

American Concrete Pipe Association, annual convention, Broadmoor Hotel, Colorado Springs, Colo., March 6-10.

American Congress on Surveying and Mapping, and American Society of Photogrammetry, convention, Shoreham Hotel, Washington, D. C., March 18-24.

Conference on Urban Design, Robinson Hall and Hunt Hall, Harvard University, Cambridge, Mass., April 9-10.

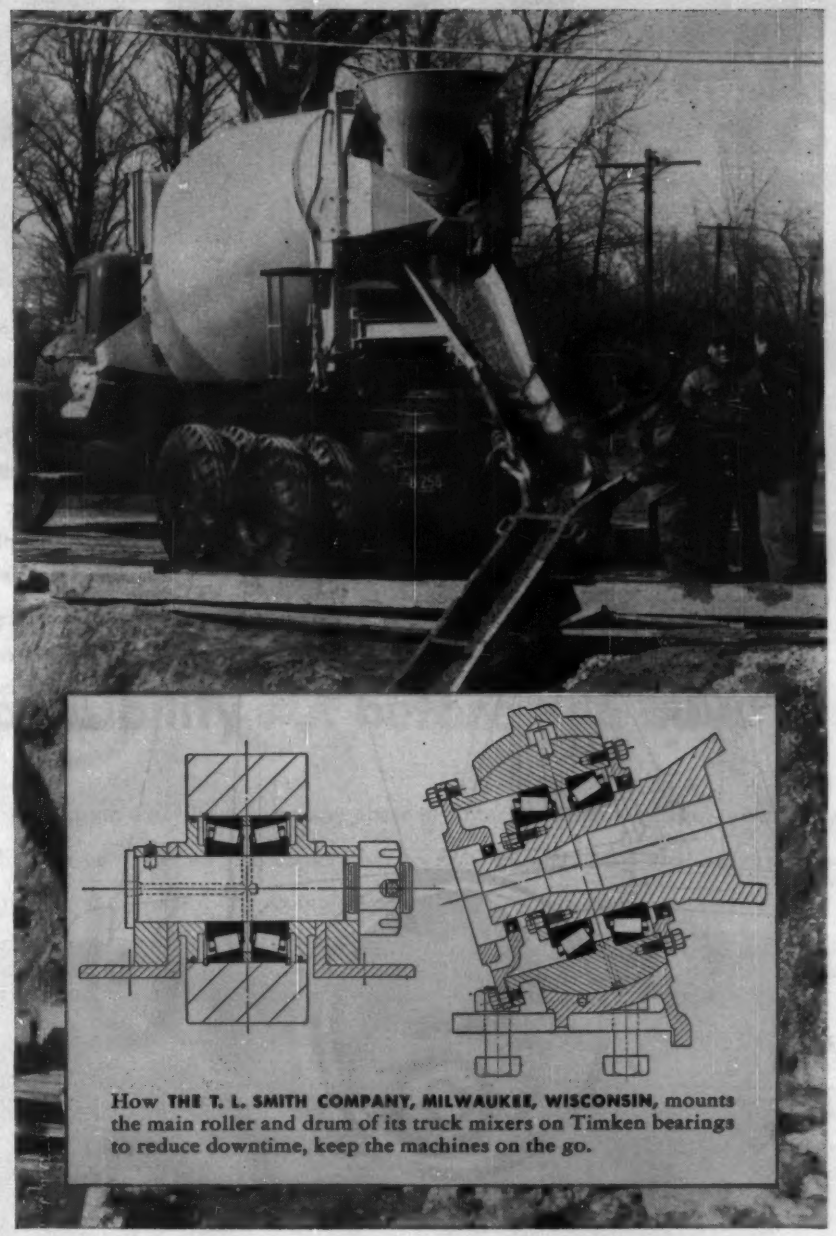
Why The T. L. Smith Co. specifies TIMKEN® bearings on its heavy-duty mixers

LIKE any heavy-duty mixer, this Smith truck mixer must mix and haul tons of concrete daily on a tight work schedule. To keep it on the go, the bearings in the trunnion and drum rollers have to be rugged to take the punishing radial and thrust loads. Looking for a way to improve performance at these vital points, T. L. Smith engineers specified Timken® tapered roller bearings.

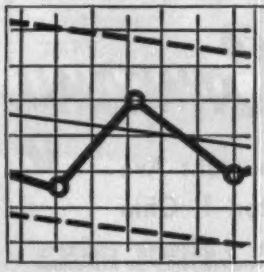
Constant, heavy shock loads don't bother Timken bearings because the bearing rollers and races are case-carburized to get hard, wear-resistant surfaces over tough, shock-resistant cores. Tapered construction enables Timken bearings to take *both* radial and thrust loads in any combination. And full line contact between rollers and races gives Timken bearings extra load-carrying capacity. The Mixer operates steadily, keeps on the go with minimum maintenance.

You get the same advantages, and more, when you specify Timken bearings for the machines you buy or build. We overlook nothing to give you the best tapered roller bearing money can buy. We even make our own fine alloy steel—America's only bearing manufacturer that does. Be *sure* . . . be safe . . . look for the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



How **THE T. L. SMITH COMPANY, MILWAUKEE, WISCONSIN,** mounts the main roller and drum of its truck mixers on Timken bearings to reduce downtime, keep the machines on the go.



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To insure uniform high quality and closer tolerances, the Timken Company uses statistical quality control. With it, tolerance deviations are plotted graphically. It's one of industry's newest, most scientific methods of improving product uniformity.

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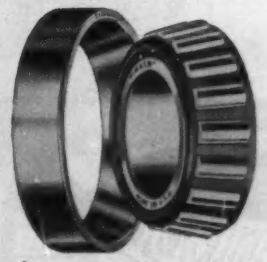
TAPERED ROLLER BEARINGS



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Should you use Concrete Pressure Pipe for sewers?

Yes, if you have one of these three jobs to do:

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Anti-infiltration sewer line
Subaqueous sewer line

Price Concrete Pressure Pipe is ideal for any one of these because it has *great strength, long life* and *flexible, bottle-tight joints.*

Miami's new subaqueous sewer line is Price Pipe. Running across the bottom of Biscayne Bay, this 72" line of ageless concrete will give scores of years of trouble-free service.

Miami uses Price Concrete Pressure Pipe for water supply lines, too. So do Rochester, N. Y., Bloomington, Ill., Cleveland, Ohio, and many other cities, large and small.

They like Price water pipe because it gives them *all* 3 of the "Big 3" requirements for an ideal water supply line . . . *long life, great strength* and *sustained capacity.*

If you want the *permanence* of concrete, plus *trouble-free service,* specify Concrete Pressure Pipe for your next water supply or pressure sewer line.

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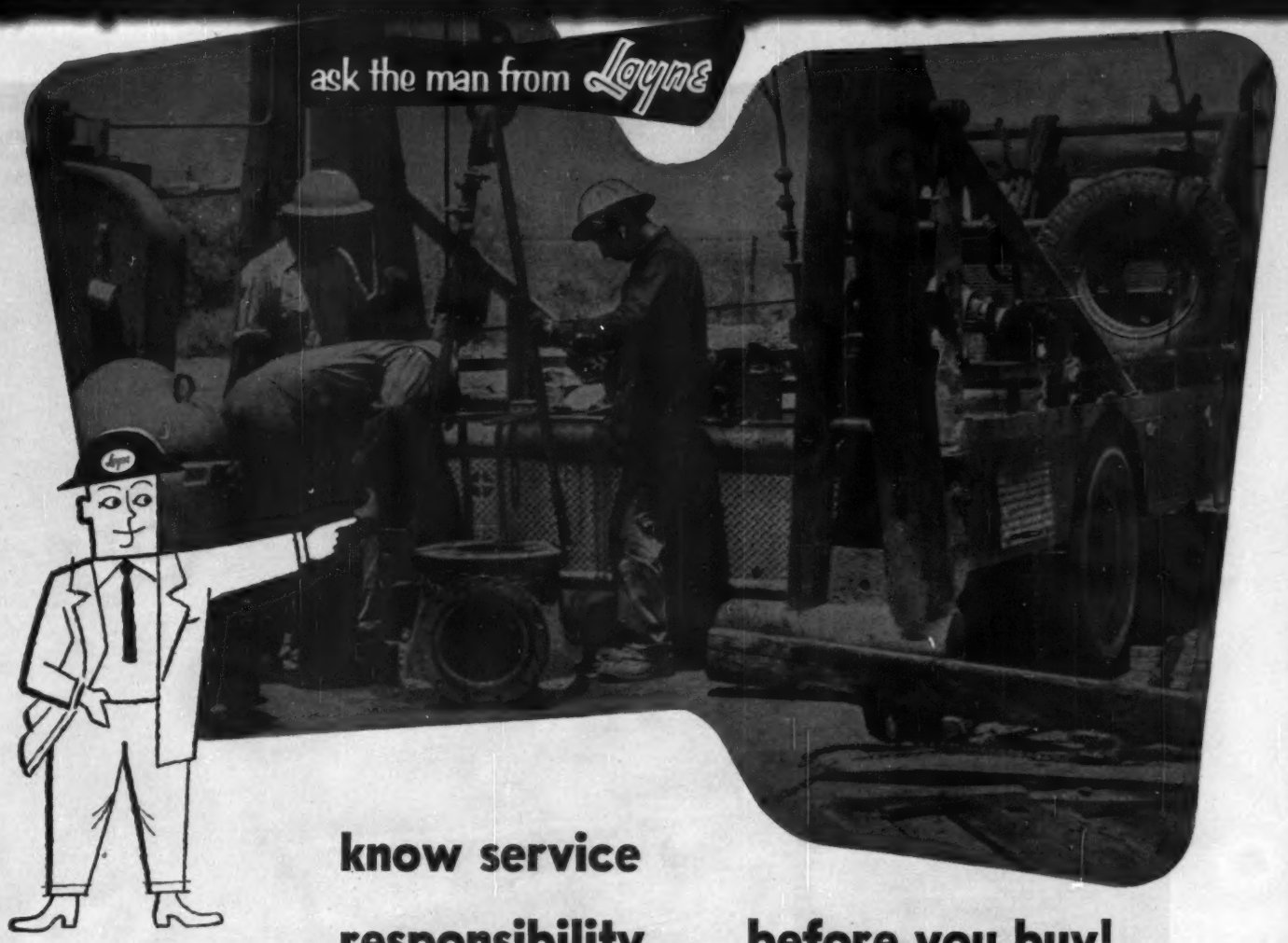
Member American Concrete Pressure Pipe Association

Concrete Pressure Pipe for Water Supply, Subaqueous, Pressure Sewer and Culvert Installations



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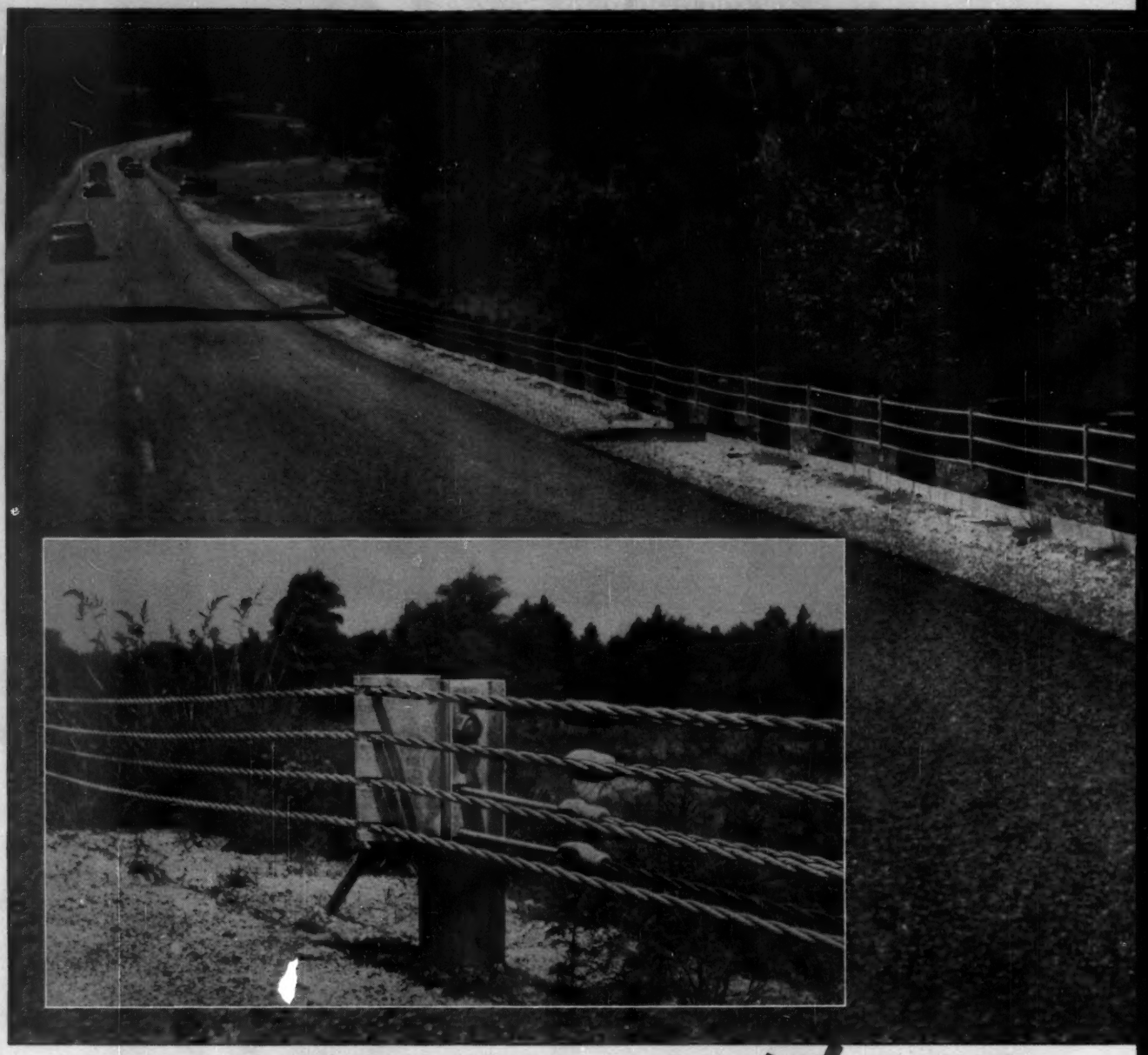

Safe Curve Ahead!

USS

USS American Multisafty Highway Guard

We took no chances when we designed USS American Multisafty Highway Guard Cable. We made actual tests — sent automobiles hurtling into experimental guards of all types—and only then got down to the important business of designing a highway guard.

Results of over 140 of these impact tests prove that Multisafty Highway Guard, which is made of strong *flexible* steel cables, gives greater protection to automobiles and passengers than any other type of highway guard.

Multisafty Highway Guard gives *double-action* cushioning. First you have the inherent flexibility of the cable acting to cushion the shock of a collision, and, second, you have special spring-steel offset brackets that add extra shock absorption.

Multisafty Highway Guard's special features make it possible to design the safety of your highways to suit a given rate of speed. And at low cost. Our engineers will be glad to help you plan the safety guard on your next highway. They can give you expert advice on both design and installation. Write for complete information.

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UNITED STATES STEEL

for lower cost control of moderately **Corrosive** fluids

Fig. 2651-A Gate

JENKINS

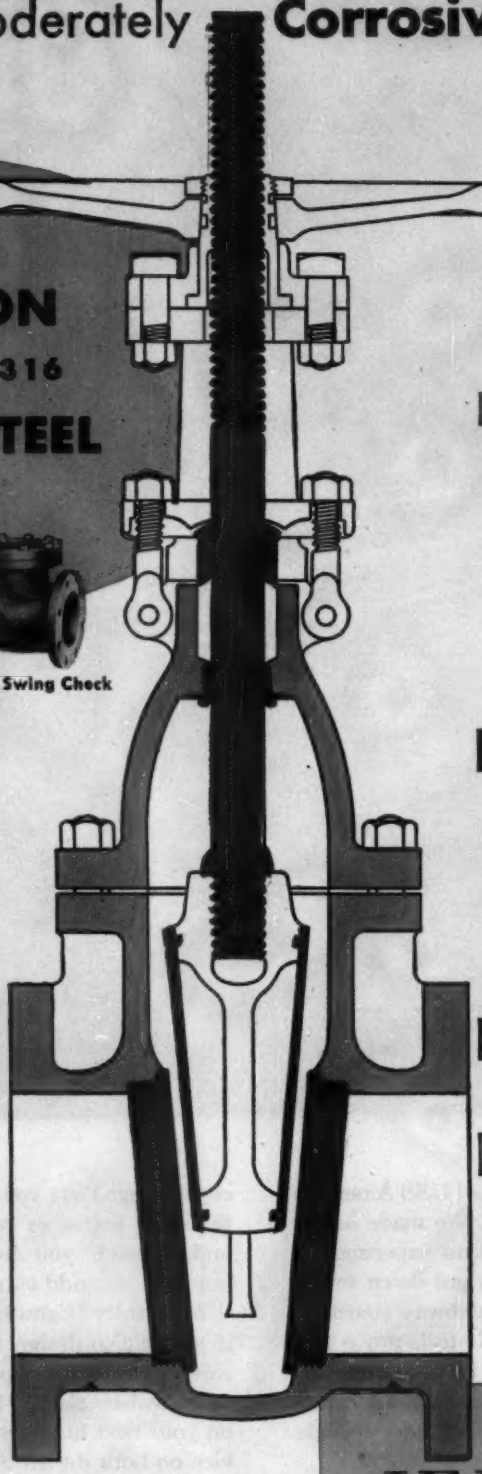
NICKEL IRON

Valves with Type 316

STAINLESS STEEL

Trim

Fig. 2624 Swing Check



Every part in contact with fluid is the right metal to block corrosion and beat wear.

- **BODIES** Heavy duty, dimensioned for greater resistance to wear and abuse. Through port design in Gate Valves.
- **BONNET** Rugged construction, like body. Swing-type gland bolts. Screwed-in back-seating bushing. Deep stuffing box.
- **YOKE** Integral with bonnet in 2″ to 4″ sizes.
- **WEDGE** In 10″ to 24″ sizes, with Stainless Steel Wedge Rings.
- **COVER** In Check Valve.

Type 316 STAINLESS STEEL

- SPINDLE
- GLAND
- BONNET BUSHING
- SPINDLE RING
- WEDGE PIN
- WEDGE RINGS Rolled into Nickel Iron Wedge in 10″ to 24″ sizes.
- SEAT RINGS
- DISC and HANGER in Check Valve

NI-RESIST Type No. 2

- WEDGE of I-beam structure is solid NI-RESIST in 2″ to 8″ sizes.

PRESSURE RATINGS

2″ to 12″—200 lbs. O.W.G.
14″ to 24″—150 lbs. O.W.G.

This combination provides corrosion resistance well above the moderate need in many processing services with an investment well below that for all-stainless steel valves.

Designed primarily for the chemical process industries, they are recommended for control of mildly corrosive liquids with minimum quantities of mineral acids, such as creosote in wood treatment, and many liquids carried in petroleum processing.

A major use is in pulp and paper processing, particularly in lines serving the digester, and in the chemical recovery cycle. Service records in lines carrying the valve-punishing "black liquor" give Jenkins Nickel Iron Valves top performance rating.

Jenkins *extra value* construction throughout. Get details — compare. See why they stretch your valve investment dollar — with longer service life, lower maintenance cost.

ALSO RECOMMENDED for fluids used in electroplating, photograph finishing, bleaching, dyeing, and heat treating of metals.

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

THE SCORE ON CEMENT—Probably few have realized the tremendous scale on which the portland-cement industry is expanding capacity to meet today's boom-level demand.

An ENR survey has found that a whopping 25% increase in production capacity is due to be realized by the end of 1956 or early 1957 (page 21). And, this should mean the end of the cement shortage in most areas of the country by the spring of 1957. Though this year's expansion program is a healthy one by previous standards, most of the new capacity is scheduled to come into operation in 1956.

But, there's one fly in the ointment: Most firms expect that prices will have to be boosted in order to help finance the huge expansion.

CONSULTANTS' ROLE HIT—Maryland's Highway Commission drew sharp criticism from a legislative committee for a tendency to place too much reliance on the advice of its consulting engineers in matters of general policy. (Page 24). Under direct fire was the commission's use—on the advice of its consultants—of two real estate firms to acquire right-of-way for Baltimore tunnel approaches.

AASHO ASPIRATIONS—Last week at their annual meeting in New Orleans, the American Association of State Highway Officials quietly requested Congress to get a move on to expedite the highway program. AASHO's resolution suggested that funds be made available on 90% federal-10% state basis by July so that they could get under way. Other recommendations expanded the resolution passed at last year's meeting (see p. 27).

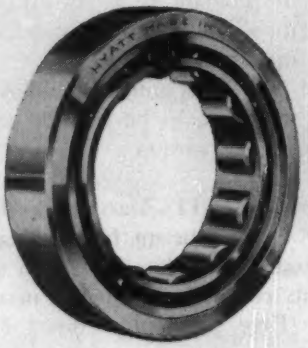
LABOR'S NEW ERA BEGINS—Meeting last week in its first convention, the AFL-CIO listed construction workers as one of the targets of the biggest organizational crusade in history (page 104).

Moved by the infectious spirit of unity, 10 of the building trades readily agreed to the industrial part of their membership going in under the wing of the new Industiral Union Department. This would give these members, it was hoped, a better opportunity to protect their jurisdictional claims.

SCHOLARSHIPS—In a two-pronged effort to increase the flow of civil engineer graduates, the Asphalt Institute last week decided to: (1) Establish a number of "scholarship-sponsorships" to encourage financially-handicapped high school students with a natural bent for engineering to continue their studies and (2) set up a fellowship program to attract young engineers to specialize in asphalt work.

HYATTS HELP MAKE GIANT D9 CAT LIGHT-FOOTED

Caterpillar utilizes Hy-Loads in transmission and final drive of new D9, world's biggest crawler tractor



In announcing this 28-ton addition to its famous line, Caterpillar Tractor says it was designed to be a "*light-footed giant, with every part aimed at the kind of service which is too tough and too rugged for other tractors.*" No wonder we're proud that HYATTS were selected to shoulder so much of the shock-load in the D9's final drive and transmission!

When you realize that the new turbocharged engine in this tractor develops *230 drawbar horsepower*, you know what brutal punishment those bearings must bear. But Caterpillar knows, too, from long experience, that HYATTS can handle it and *keep coming back for more.*

Aren't these the kind of bearings you want on *your* equipment?

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

WASHINGTON OBSERVER

The Administration's first turn-around on housing came this week with the Home Loan Bank Board re-opening its lines of credit to savings and loan associations. The move had been expected for some time.

Savings and loan associations can now borrow from their Home Loan Banks new money to finance construction loans. This kind of credit was turned off by the board last September.

But there are restrictions on the amounts. An association can borrow—from here on—up to 5% of the amount of total savings it has on deposit. But this new borrowing may not bring the association's total borrowings above 10%. Thus, an association already having borrowed up to 7% of its deposits, may borrow only up to 3% more; an association that has borrowed up to 3% of its deposits may borrow only 5% more.

Associations can exceed these ceilings under special circumstances with specific approval of the board itself. **Officials figure that about $500 million of new credit** will be used to finance new construction loans. However, if all the associations come in for the amount of credit they are now entitled to, the total would rise by something like $1.5 billion.

•

Government officials and builders see the move as mainly an indication that the Administration isn't inflexibly committed to a tight money policy for homebuilding.

The move may result in the financing of some 50,000 starts—which is a sizeable piece of business. But undoubtedly the main impact is to take off some of the pressure the savings and loan officials and homebuilders have been putting on Eisenhower's top advisors.

Easing of FHA and VA mortgage terms may be farther in the future as a result of the easing now given the savings and loan associations. Administration policy is to hold off any action here until it figures the construction industry in particular—and the economic outlook in general—can stand the stimulation. As things stand now, officials are worried about inflationary price increases of construction materials.

•

AFL building trades are studying amalgamation of some separate crafts as a way of wiping out the problem of jurisdictional disputes. This was being talked off-stage at the AFL-CIO merger convention in New York (page 104).

Idea is to combine unions doing the same work. For instance, the merger of the metal lathers and carpenters would end the fight between them over ceiling installation. Carrying out this kind of scheme could affect half a dozen or more unions in the building trades.

There are obvious roadblocks to such a proposal. For instance, pay scales may be different—but the answer is to negotiate the higher rate for all members of the new joint union. Then there's the loss of power and prestige for top union bosses—but this is something, too, that's been handled successfully before.

The idea is a long way from being adopted. But it will continue to be discussed in Washington headquarters.

•

Canadian and U. S. St. Lawrence Seaway officials have agreed on regulating water level of Lake Ontario. This will help prevent damage to property along the lake shore by providing better control of the flow from the lake into the St. Lawrence River at Iroquois Dam.

Object is the same as found in other hydro-projects—get the best use of water for power production consistent with maintaining best water level in the storage reservoir (in this case, the lake) the year around.

For Bridge Work where low first cost and minimum maintenance are essential . . .

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Timbers • Piles • Planking
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Bridge Ties

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Attractive, highly serviceable bridges can be built economically when you use Amcreco Creosoted Piles, Bridge Timbers and Planking. Service records prove that Amcreco's advanced treating techniques used on these materials result in longer service life and less maintenance. We will be happy to show you the proof!

Plan now to take advantage of Amcreco's long experience on your next job. Our engineers are ready to work with you.

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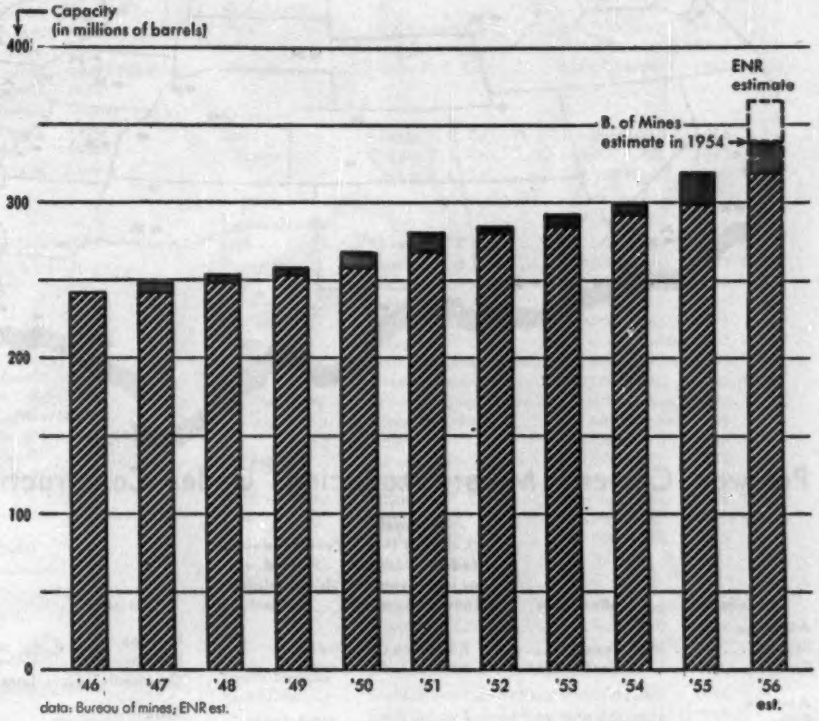
GENERAL SALES OFFICE — CHICAGO, ILLINOIS

The cement industry has a huge expansion program under way. That means . . .



Cement Shortage Will End in 1957

John P. Chamberlain
Associate Editor

Unless there is a substantial increase in the present boom-level demand, the cement shortage should be over in 1957 in most areas. The portland cement industry is at the midpoint in an unprecedented expansion program that will increase its capacity by 25% from the 1954 level (chart).

On the basis of its own survey of industry plans, ENR estimates that annual capacity of portland-cement mills will climb from the Bureau of Mines' figure of 298,000,000 bbl at the end of 1954 to about 320,000,000 bbl at the close of this year, and to about 366,000,000 bbl at the end of 1956. The Bureau of Mines, which about a year ago estimated that 1956 capacity would be around 339,000,000 bbl, is now conducting its own survey to update that figure.

ENR's estimate for 1955 is based on the industry's plans to bring 23,000,000 bbl of new capacity into production by the end of this year. The 1956 estimate is based on the much more ambitious program scheduled for next year—about 56,000,000 bbl of new capacity, according to the answers the cement companies made to the ENR survey.

• **Confirmed**—A study recently made within the industry confirms ENR's figures. That study indicates that by the end of 1956 the industry will have about 368,000,000 bbl of clinker capacity. In the clinker stage, the material is one step away from the final grinding into cement. In past years, clinker capacity has been considered to be a more realistic measure than finished cement capacity figures, which sometimes have tended to be unduly optimistic.

ENR's estimate is also based on the assumption that about 1,000,000 bbl of capacity, earlier scheduled to go "on stream" this year, will actually not start until early 1956. It also assumes that about 10,000,000 or 11,000,000 bbl of new capacity now scheduled to be producing in 1956 will not actually be ready until 1957.

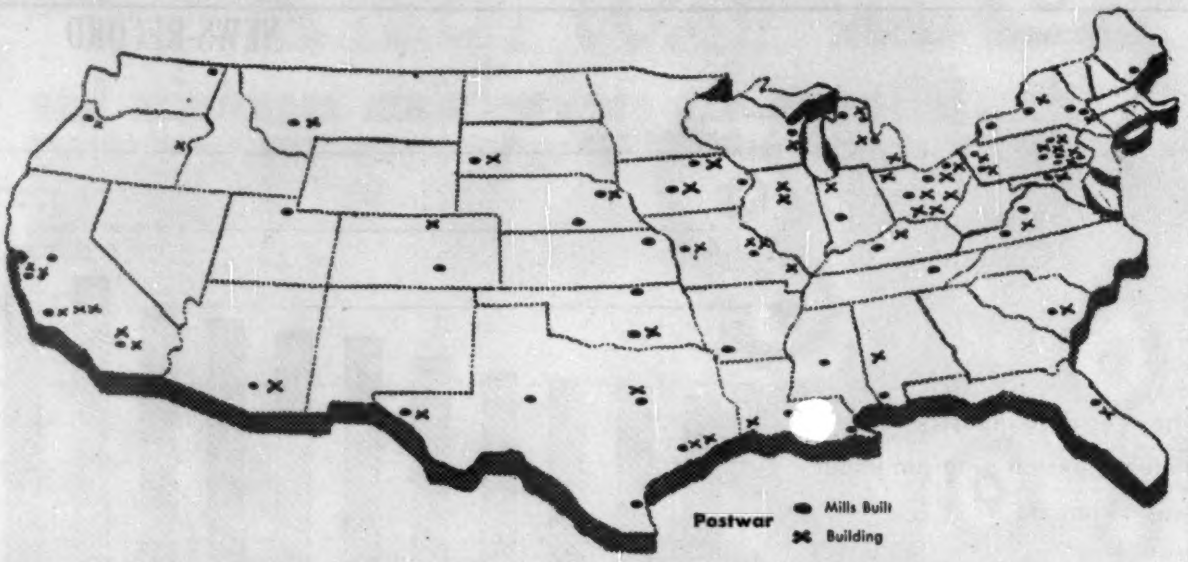
Furthermore, ENR's survey shows the industry already has scheduled an additional 15,000,000 bbl of new capacity for 1957 and later years. Other plans are in a preliminary stage, to be brought forward later if demand continues strong.

• **Cost**—Putting in this new capacity involves a wide variation in costs. Announced costs on additions to existing mills vary all the way from $2.00 per bbl of annual capacity to $7.50. Figures on new mills run from $5.60 to $12.

However, these figures are not strictly comparable. The cost of an addition will vary widely, depending on how many auxiliary facilities—for instance, storage space and grinding units—are needed. Foundation costs can make a lot of difference. Cost of a new mill next to an existing mill will be lower than a new mill in a new location. A new plant that has to develop its own quarry will cost more than a new plant drawing on existing sources of raw material. Railroad trackage and right-of-way costs will vary.

Climate too will affect the amount

Where the industry is expanding cement capacity



Postwar Cement Mills: Producing, Under Construction, Planned

Location	Producer	Annual Capacity (bbl.) (add)—addition or improvement (new)—new mill	Year Production Started, or Is Scheduled to Start
Alabama			
Mobile	Ideal Cement Co.	2.2 million (new)	1946
Spocari	Lone Star Cement Co.	500,000 (add)	1956
Arizona			
Rillito	California P. C. Co.	2.5 million (new and additions)	1950–1955
Arkansas			
Okay	Ideal Cement Co.	1¼ million (add)	1956
California			
Cushenberry	Permanente Cement Co.	2.5 million (new)	1956
Kentucky House	Calaveras Cement Co.	2.2 million (adds)	1946, 1952
	Calaumas Cement Co.	1.2 million (add)	1956
Monolith	Monolith P. C. Co.	1.4 million (add)	1947–1955
	Monolith P. C. Co.	1.3 million (add)	1956
Mojave	California P. C. Co.	2.3 million (new)	1955
	California P. C. Co.	2.5 million (add)	1957 (probable)
Permanente	Permanente Cement Co.	2 million (adds)	1948–1951
	Permanente Cement Co.	1.4 million (add)	1956
Redwood City	Ideal Cement Co.	1.3 million (add)	1957
Victorville	Southwestern P. C. Co.	9 million (adds)	1946–1954
	Southwestern P. C. Co.	4.7 million (add)	1955
	Southwestern P. C. Co.	5.8 million (add)	1956
Colorado			
Boettcher	Ideal Cement Co.	1.2 million (add)	1956
Portland	Ideal Cement Co.	1.7 million (new)	1948
Florida			
Bunnell	Lehigh P. C. Co.	1.4 million (new)	1952
	Lehigh P. C. Co.	600,000 (add)	1956
Idaho			
Inkom	Idaho P. C. Co.	800,000 (new)	operating
Illinois			
Dixon	Medusa P. C. Co.	1 million (add)	1956
LaSalle	Alpha P. C. Co.	500,000 (add)	1959
Indiana			
Buffington	Universal Atlas Cement Co.	3 million (new)	1956
Greencastle	Lone Star Cement Corp.	600,000 (add)	1955
Iowa			
Davenport	Dewey P. C. Co.	2.7 million (adds)	1949, 1953
Des Moines	Marquette Cement Mfg Co.	1.1 million (add)	1951
Mason City	Lehigh P. C. Co.	600,000 (add)	1950
	Northwestern States P. C. Co.	500,000 (add)	1954–1955
	Northwestern States P. C. Co.	300,000 (add)	1956
West Des Moines	Penn-Dixie Cement Corp.	1 million (add)	1956
Kansas			
Bonner Springs	Lone Star Cement Corp.	600,000 (add)	1955
Kentucky			
Kosmosdale	Kosmos P. C. Co.	700,000 (adds)	1953, 1955
	Kosmos P. C. Co.	600,000 (add)	1957
Louisiana			
Baton Rouge	Ideal Cement Co.	2.1 million (new)	1950
	Ideal Cement Co.	620,000 (add)	1956
Lake Charles	Lone Star Cement Corp.	2 million (new)	1956
New Orleans	Lone Star Cement Corp.	600,000 (add)	1948
Maine			
Thomaston	Dragon P. C. Co.	1.2 million (adds)	1947, 1952
Maryland			
Security	North American Cement Corp	1 million (adds)	1945–1955
	North American Cement Corp	250,000 (add)	1955
Union Bridge	Lehigh P. C. Co.	2 million (add)	1956

spent on exterior walls. Again, some mills are built at high cost with an eye to low maintenance; in others this is not so much of a factor.

• Prices—Though costs of putting in new capacity will vary, it's certain that this huge program will mean higher prices for cement. Many companies have announced price boosts for the first quarter of 1956 ranging from 15 cents to 25 cents per bbl. This trend will continue.

The fact is that the cement companies do not have enough depreciation reserves available to finance expansion and at the same time keep existing mills in running order. (There are very few plans to shut down any existing mills.) Also, depreciation is based on original cost of the present mills, and it costs more to build new capacity today.

The table and map (above) show where expansions are coming in. They pinpoint additions and improvements to existing plants, as well as entirely

Location	Producer	Annual Capacity (bbl.) (add)—addition or improvement (new)—new mill	Year Production Started, or Is Scheduled to Start
Michigan			
Alpena	Huron P. C. Co.	5 million (adds)	1947–1954
	Huron P. C. Co.	2.5 million (add)	1956
	Huron P. C. Co.	1 million (add)	1956–57
Bay City	Aetna P. C. Co.	1 million (adds)	1947, 1954
	Aetna P. C. Co.	1 million (add)	1956
Detroit	Peerless Cement Corp.	600,000 (add)	postwar
	Peerless Cement Corp.	1 million (new)	1956
Petoskey	Penn-Dixie Cement Corp.	1 million (add)	1955
Port Huron	Peerless Cement Corp.	1.6 million (add)	postwar
Mississippi			
Brandon	Marquette Cement Mfg. Co.	1.3 million (new)	1951
Missouri			
Cape Girsaudeau	Marquette Cement Mfg. Co.	1.2 million (new)	1956
Prospect Hill	Missouri P. C. Co.	2 million (add)	1950
	Missouri P. C. Co.	1.5 million (add)	1956
St. Louis	Alpha P. C. Co.	600,000 (add)	1948
	Alpha P. C. Co.	700,000 (add)	1957–1960
Sugar Creek	Missouri P. C. Co.	1 million (add)	1954
	Missouri P. C. Co.	1.2 million (add)	1956
Montana			
Trident	Ideal Cement Co.	600,000 (add)	1952
	Ideal Cement Co.	1.3 million (new)	1957
Nebraska			
Louisville	Ash Grove Lime & P. C. Co.	1.4 million (adds)	1949, 1953
	Ash Grove Lime & P. C. Co.	700,000 (add)	1956
Superior	Ideal Cement Co.	1.3 million (new)	1957
New York			
Alsen	Lehigh P. C. Co.	1 million (add)	1955
Buffalo	Penn-Dixie Cement Corp.	1 million (add)	1951
Catskill	North American Cement Corp.	700,000 (add)	1948
Cementon	Alpha P. C. Co.	1 million (adds)	1955, 1956
Howes Cave	North American Cement Corp.	550,000 (add)	1953
	North American Cement Corp.	600,000 (add)	1956
	North American Cement Corp.	1.8 million (add)	1957–1960
Hudson	Lone Star Cement Corp.	1 million (add)	1956
Ohio			
Fairborn	Southwestern P. C. Co.	4.4 million (adds)	1946, 1947
	Southwestern P. C. Co.	3.2 million (add)	1955
	Universal Atlas Cement Co	625,000 (add)	1956
Ironton	Alpha P. C. Co.	800,000 (add)	1958
Middle Branch	Diamond P. C. Co.	700,000 (add)	1948
		1.1 million (add)	1957
Painesville	Standard P. C. Division,	1.5 million (add)	1954
	Diamond Alkali Co.	1.7 million (add)	1955
		1.9 million (add)	1956
Superior	Marquette Cement Mfg. Co.	500,000 (add)	1955
Toledo	Medusa P. C. Co.	1.0 miilion (add)	1957
Zanesville	Columbia Cement Div. Pittsburgh Plate Glass Co.	1 million (adds)	1956 and later
Oklahoma			
Ada	Ideal Cement Co.	650,000 (add)	1951
	Ideal Cement Co.	1.4 million (add)	1956
Dewey	Dewey P. C. Co.	660,000 (add)	1950
Oregon			
Lime	Oregon P. C. Co.	1 million (add)	1956
Oswego	Oregon P. C. Co.	650,000 (add)	1947
	Oregon P. C. Co.	700,000 (add)	1956
Pennsylvania			
Bath	Keystone P. C. Co.	650,000 (add)	1956
Bessemer	Bessemer L. & C. Co.	600,000 (adds)	1947–1951
	Bessemer L. & C. Co.	800,000 (add)	1956
Brodhead	National P. C. Co.	600,000 (add)	1956
Coplay	Coplay Cement Mfg. Co.	600,000 (add)	1956
Evansville	Allentown P. C. Co.	1.1 million (adds)	1947, 1953
Nazareth	Lone Star Cement Corp.	1.3 million (adds)	1956
	Nazareth Cement Co.	600,000 (adds)	1946, 1956
Neville Island	Green Bag Cement Div.	1.5 million (new)	1949
	Pittsburgh Coke & Chemical Co.	1.8 million (new)	1952
		2 million (add)	1956
Stockertown	Hercules Cement Corp.	600,000 (add)	1953
	Hercules Cement Corp.	500,000 (add)	1956
W. Conshohocken	Allentown P. C. Co.	1 million (adds)	1952, 1955
York	Medusa P. C. Co.	870,000 (add)	1951, 1955
	Medusa P. C. Co.	750,000 (add)	1956
South Carolina			
Harleyville	Giant P. C. Co.	800,000 (new)	1948
	Giant P. C. Co.	1 million (add)	1952
South Dakota			
Rapid City	South Dakota Cement Plant	900,000 (add)	1950
	South Dakota Cement Plant	900,000 (add)	1956
Tennessee			
Knoxville	Volunteer P. C. Co.	700,000 (add)	1951
Texas			
Corpus Christi	Halliburton P. C. Co.	1.2 million (new)	1950
Dallas	Lone Star Cement Corp.	700,000 (add)	postwar
	Lone Star Cement Corp.	1.4 million (add)	1956
El Paso	Southwestern P. C. Co.	2.5 million (adds)	1946, 1950
	Southwestern P. C. Co.	2 million (add)	1956
Houston	Ideal Cement Co.	550,000 (add)	1947
	Ideal Cement Co.	1.5 million (new)	1956
	Lone Star Cement Corp.	1.1 million (add)	1956
Maryneal	Lone Star Cement Corp.	2.6 million (new)	1952
Utah			
Devils Slide	Ideal Cement Co.	1.7 million (new)	1948
Virginia			
Fordwick	Lehigh P. C. Co.	500,000 (add)	1949
Roanoke	Lone Star Cement Corp.	2.2 million (new)	1951–1953
	Lone Star Cement Corp.	800,000 (add)	1956
Washington			
Metaline Falls	Lehigh P. C. Co.	600,000 (add)	1949
Wisconsin			
Manitowoc	Medusa P. C. Co.	700,000 (add)	1953
Milwaukee	Marquette Cement Mfg. Co.	1¾ million (new)	1956

new mills. For reasons of space, expansions of less than 500,000 bbl have been omitted. So the table will not square with ENR's totals.

• **A backward look**—A good idea of the size and boldness of the current expansion can be gained by a look at past records. There has been nothing comparable in a generation. During the 1920s, shipments from mills climbed from 96,000,000 bbl in 1920 to almost 176,000,000 in 1928—and capacity climbed with shipments. Then shipments dropped steadily to 64,000,000 bbl in 1933. It wasn't until 1942 that war activity brought cement shipments back to the 1928 level. Then they slumped again in the later years of the war.

By 1947, peacetime demand for cement had brought shipments back to about 186,000,000 bbl, and they have kept gaining ever since. This year has seen the biggest expansion since the 1920's. Next year will be tremendous.

Maryland Melee

Legislators hit Highway Commission's delegation of acquisition powers

Continuing its attacks on the State Highway Commission—and through it the governor—a Maryland legislative committee last week brought a Baltimore consulting engineering firm under indirect fire.

The committee brought out a sharply-worded report criticizing the Highway Commission for too much dependence on the consulting firm of J. E. Greiner and Co., in the matter of land acquisition for highway right-of-way. Following the consultant's recommendations, the commission had engaged two real estate firms —on a fee basis—to acquire right-of-way for 13.5 miles of approaches to the new tunnel under the Patapsco River.

In an atmosphere heavily charged with political considerations, the committee had already criticized the Highway Commission as being weak and poorly organized and recommended the appointment of an administrator (ENR Dec. 1, p. 25). One result of this barrage was the announcement last week that Governor Theodore McKeldin—acting on recommendations of a committee he himself had named—had given greater authority on administrative matters to Norman M. Pritchett, Highway Commission chief engineer. In effect, the governor made Pritchett chief administrative officer, with jurisdiction over the traffic division and right-of-way department, as well as engineering work.

Looking at the right-of-way problem, the committee received testimony that although original estimates of land costs ran about $9.7 million, costs under the system recommended by the Greiner firm would actually total about $8 million.

However, the report commented that the 7½% fee being paid the real estate firms might be too high, and that there is no inducement for these firms to hold prices down. Roads commission officials testified, however, that their right-of-way department was already overloaded with work and didn't have the expert experience necessary to acquire industrial properties. A Greiner official added that his organization had made the recommendation to use expert real estate men in a successful effort to keep right-of-way costs within reasonable limits.

• **Abdication?**—But the legislative committee used its report to hammer away at a key point of its criticism of the commission for abdication of its responsibilities.

Assailing the commission's "extreme" dependence on consulting engineers, the report commented:

"This is a question of long-time governmental policy . . . we believe it to be indicative of an unfortunate trend in public finances. The authority, real or fancied, which was exercised by the J. E. Greiner Company was . . . far removed from control by the voters and taxpayers of . . . Maryland. Revenue financing apparently has led into abdication to the bondholders of the authority and management formerly held by government . . . Perhaps the strongest among all impressions . . . was that of the extreme degree to which the . . . commission depends on the opinions and suggestions of the J. E. Greiner Co. This is not a new development . . . time and again, whenever there was a question of the origin or initiation of a policy, the answer went back . . . to the . . . company. The . . . company assumes greater prerogatives and makes policy excursions into more fields which belong to the State Roads Commission than the committee feels can possibly be justified."

Local newspapers, however, observed that the engineering firm had merely stepped into an administrative vacuum in the interest of "getting things done."

More Seaway Work

Welland Canal project to get under way this winter

The St. Lawrence Seaway Authority has awarded three contracts totaling almost $1.2 million for enlarging the Welland Ship Canal.

The 25-ft-deep canal, which will constitute part of the future Seaway, bypasses Great Lakes shipping around Niagara Falls, between Lake Ontario and Lake Erie.

The first contract awarded calls for enlarging the canal channel between Locks 1 and 2, near Port Weller, Ont. Work entails excavation of 126,000 cu yd of material, removal of 50 cu yd of concrete slabs and the placing of 100 cu yd of stone protection along the channel. This award went to McNamara Construction Co., Ltd., Toronto, on a low bid of $359,755.

The second contract is for enlarging the channel from Lock 2 to Lock 3, between Port Weller and Merriton, Ont. Under the contract 482,000 cu yd of material will be excavated, 600 cu yd of concrete slabs will be removed, and 200 cu yd of stone protection will be placed. The award for this work went to Swansea Construction Co., Ltd., Toronto, on a $698,260 low bid.

The third contract involves enlarging the channel from Lock 3 to Lock 4 also between Port Weller and Merriton. Work to be done includes excavation of 41,000 cu yd of material, removal of 100 cu yd of concrete slabs, and placement of 100 cu yd of stone protection. Aiken & MacLachlan, Ltd., St. Catharines, Ont., won the contract on a low bid of $104,000.

Work on all three projects will be carried out during the non-navigation seasons of the next three years. The entire job is scheduled to be completed by June 1958.

To date—and including the three new projects—the St. Lawrence Seaway Authority has awarded 25 contracts totaling some $50 million for construction of permanent facilities required for the Seaway.

Wanted: New Trade

International port to be developed on Newark Bay

During the next 25 years the Port of New York Authority plans to turn unused marshland along Newark Bay at Elizabeth, N. J. into a new port capable of handling 25 full-size ocean vessels.

To set up the Elizabeth facility, the Port Authority will develop a 400-acre tract of privately-owned, marshy tideland plus a 1-mi-long, 750-ft-wide channel. Upon completion Port Elizabeth will have a mile of waterfront on the new deep channel that will replace Bound Creek, and about a mile of waterfront along Newark Bay. The backland area will be improved with facilities for trucks, rails and warehouses.

The initial phase of the improvement—to cost about $4 million—includes construction of a part of the channel, utilities and acquisition of property. Both the channel and other port facilities will be built gradually to keep up with the demands of trade.

Port Elizabeth is expected to take care of more than 2,000,000 tons of import-export cargo that moves annually between northern New Jersey industries and world ports.

The Port Authority already has developed most of the unused areas of the nearby 650-acre Port Newark. Earlier this month the authority announced plans to build a new $9.3-million, 4-berth terminal there. This facility, to be used by Norton, Lilly Co. for its shipping activities, will bring the total Port Authority investment in Port Newark to about $31 million.

After long controversy . . .

Thruway's Long Bridge Goes to Work

Since man first felled a tree across a stream he wanted to cross, few bridges have come in for the variety of broadsides leveled at the New York Thruway's $60-million Tappan Zee Bridge. Delayed two years by controversies ranging from politics and economics through design and construction and by the Korean war, the 15,300-ft river crossing will today begin paying for itself. Estimates indicate that by 1960 its earning power will be very nearly $7 million per year.

First point of controversy—and it's not entirely quieted yet—was the location of the structure across the widest part of the Hudson River.

Engineers for the Thruway Authority insisted that location at this point was proper—despite the length of the crossing necessary—because it would bring the Thruway far enough south on the west side of the Hudson River to tap rich traffic-generating areas, and, more importantly, would make possible proper grades and alignments of the highway as it came down the high plateau that forms the western shore of the river. It was also pointed out that the act creating the Port of New York Authority laid out very definite limits within which no other river crossing might be built—and the Tappan Zee site is exactly 1,200 ft north of that boundary.

Another point concerned two phases of the design. First was a spectacular tied-arch, 1,112 ft long that would have made it the longest such structure in the world. However, when this proposal was put up for bids (ENR Dec. 25, 1952, p. 27) it was greeted with silence, and the design was changed to the finally accepted cantilever truss.

Further, the original design had called for a solid earthfill causeway, several thousand feet long as the approach from the west side. Shipping interests objected on the ground that this causeway would cause a monstrous ice-jam in winter and might dangerously alter currents in the stream. The proposal was dropped in favor of the present 8,000-ft simple-truss trestle approach, supported on concrete piers.

• **Floating boxes**—For construction men, however, the most interesting phase of the bridge construction lies in the design, manufacture and placing of the eight watertight precast concrete boxes that support the center section of the bridge.

Designed by Emil H. Praeger in association with the New York consulting engineering firm of Madigan-Hyland, the boxes were fabricated (ENR July 9, 1953, p. 33) in specially built "drydocks" at Haverstraw, N. Y., then floated 10 miles downstream (ENR Oct. 22, 1953, p. 22) to their final resting place. Designed to have sufficient buoyancy to support 80% of the dead load of the bridge (carrying the other 20% on piles) the boxes vary in size from 100x190 ft by 35 ft high to 46x110 ft by 32 ft high. The eight boxes support the three main spans of the structure—the 1,212-ft main span, and side spans of 602 ft each.

The 92-ft-wide structure carries three lanes of traffic in either direction with a 10-ft-wide center mall and has two 3½-ft-wide walkways. It provides a clearance of 149 ft above mean low water in the river at the center point of the long cantilever truss. The 8,000-ft-long western approach to the center span is carried on 160 steel stringer spans, carried on concrete bents spaced 50 ft apart, and the eastern side is carried on seven 250-ft-long deck trusses.

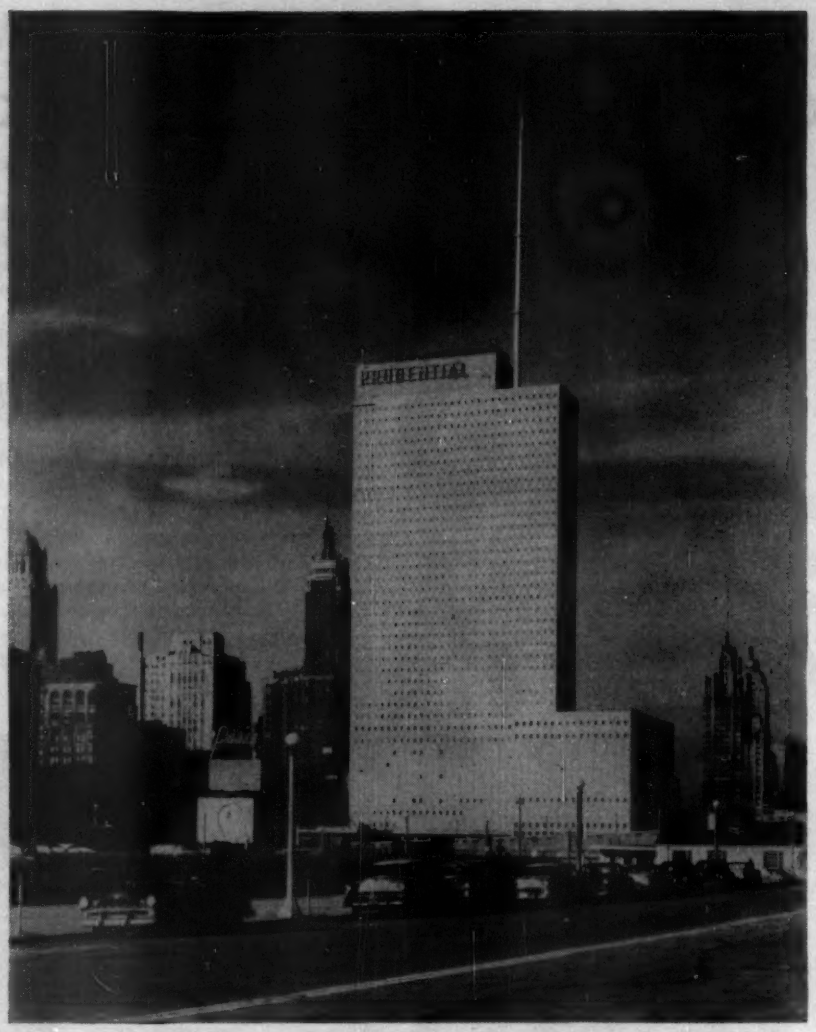
The two long approaches of the bridge make long gradual curves, so that the whole structure has the shape of an enormous, gently-curving "S" (see cover photo).

Opening of the structure brings the 427-mi Thruway to within a little more than three miles of New York City limits—to a section through a portion of the city of Yonkers. This section still presents a king-sized traffic snarl as contractors rush to complete work on a difficult right-of-way that crisscrosses existing, heavily traveled roads (ENR June 23, p. 34).

Huge Concrete Cantilever to Take Rocket's Thrust

Under construction at Edwards Air Force Base in California, this guided missile test platform (shown in model) is indicative of the new type structures that modern concepts of warfare have made the responsibility of the civil engineer and the construction man. It includes a concrete cantilever, 15 ft thick at the outer end and 40 ft thick at the haunch, placed over a flame detection pit which will lead the gases from the missile's engine away from the platform. In this installation, the missile will be tied down and fired statically rather than soaring off into the stratosphere. The facility, which will cost about $5 million, was designed for the Air Force by the Ralph M. Parsons Co., architects-engineers of Los Angeles, and is being built by the George A. Fuller Co., New York.

Two other test stands already stand sentinel on the edge of this same granite plateau overlooking the Mojave Desert. In service for about two years taking the half-million pound thrusts of experimental missile motors, they consist of high, massive concrete piers tied into the mountain side and surmounted by a cantilevered structural steel platform. The new test facility has a greater capacity, and is built of concrete partly because of the highly corrosive nature of the exhaust gases.



Chicago's Tallest Building Opens

The $40-million, 41-story Mid-America Home Office of the Prudential Insurance Company of America was dedicated last week in Chicago. With its roof 601 ft above street level and a 324 ft television mast above the roof, the Prudential Building has a total height of 925 ft, easily making it the tallest in the city.

Ground was broken for the structure in August, 1952. In the three years since it has been under construction there have been no fatalities or serious accidents. George A. Fuller Co., New York City, is the general contractor.

The building was designed by Naess and Murphy, Chicago architect-engineer firm, to straddle 22 depressed tracks and the suburban station of the Illinois Central Railroad on the lakefront just north of Grant Park (ENR Dec. 16, 1954, p. 35).

In the interior are over 1,000,000 sq ft of rentable space. The lower part of the building, through the tenth floor, provides about 40,000 sq ft on each floor, while tower floors each have about 18,000 sq ft. Prudential will occupy the third through the eighth floors, or about 30% of the total rentable area.

The building contains three restaurants with a capacity of 865 seats. A lounge on the roof offers a view of four states—Wisconsin, Michigan, Indiana and Illinois.

About 31,000 tons of structural steel went into the frame, which was topped out in November, 1954. Floors above the second are cellular steel decking topped with lightweight concrete fill. Exterior walls are limestone with brick backup alternating with aluminum spandrels and concrete-block backup. Windows are aluminum, double-glazed and vertically pivoted.

A refrigeration system of 3,000-ton capacity will air condition the building.

Vertical transportation is provided by 12 moving stairs, 27 passenger elevators and three freight elevators.

Baltimore Plans

Proposals are offered on transit, blight, airport

Baltimore planning groups have come up with far-reaching proposals in the fields of mass transportation, a civic arena, downtown blight and the use of Friendship International Airport.

A committee on mass transportation, headed by Dr. Abel Wolman, Johns Hopkins University's engineering consultant, was reported ready to issue a report recommending that the city buy the Baltimore Transit Co. and place it under the direction of a new transit authority, which also would have jurisdiction over traffic control and off-street parking.

The Greater Baltimore Committee, a group of private businessmen, offered a variety of proposals.

One which encountered immediate opposition from park-minded officials suggested a $4.5-million civic center be built on 25 acres donated by the city in Druid Hill Park.

Opponents of the plan said the civic center should be built in blighted areas, rather than reduce the size of Baltimore's largest park.

On the subject of Baltimore's drastically under-used Friendship Airport, the Greater Baltimore Committee urged the start of helicopter shuttle service between Washington and Baltimore to increase airport business.

To stop blight in downtown Baltimore, the committee urged a strong urban renewal campaign, possibly to be spearheaded by a private corporation like those which have been in St. Louis and Cleveland "not for charity but for profit."

Skyscraper Planned for Lower Manhattan

Building projects worth nearly $100 million have been planned for New York's lower Manhattan but the appointment of contractors, engineers and architects is still quite a way off.

First project on the list—in size--is a $75-million, 50 to 60-story home for the Chase Manhattan Bank. The proposed building would occupy only 30% of a two-block area with the remaining area taken up by an open plaza. Skidmore, Owings & Merrill are the architects.

The bank's announcement was keyed with a revelation by the city that a large Title I housing development is planned for Manhattan's lower East Side. The project—if a developer can be found—is scheduled to rise on a 5½ acre site and accommodate 750 families.

Flood Funds Fixed

Road fund, tax boosts to finance recovery program

Party leaders of Connecticut's legislature—after skirting the edges of a political battle over methods of financing flood recovery—have compromised on a temporary tax-increase program to raise $15.4 million during the next nine months.

The financing plan to go before the special flood-recovery session of the legislature calls for increases in state sales and liquor taxes as well as tax boosts for corporations, public utilities, domestic insurance firms and theatres. It also provides that $15.5 million be taken from the State Highway Fund to repair flood damaged state roads and bridges.

Estimated cost of needed flood work is $36.4 million. The over-all financing scheme—including $5 million federal aid—would make about $36 million available.

Also agreed upon was establishment of a special flood fund. Into it will go the $15.5 million from the highway fund as well as all revenues from the temporary tax increases.

In order to make up the money to be taken from the highway fund, the 2 cent-a-gal increase in the state gasoline tax slated to expire July 1, 1957, will be extended one year.

Gov. Abraham A. Ribicoff originally proposed that $30 million be raised by a 2-year, 10% boost of all state taxes except on gasoline and cigarettes. The cigarette levy would have been increased from 3 to 4 cents a pack (ENR, Nov. 17, p. 23).

Republicans countered with a proposal that the highway fund be tapped for $15 million and that additional money be raised by hiking the sales tax to 4% for a six-month period and by imposing a surtax on corporations for the 1955 business year.

This is how the temporary flood-recovery tax increase program now stands:

- The sales tax will be raised from 3% to 3½% for nine months starting Jan. 1. Expected revenue: $7.7 million.
- The cigarette tax will be raised from 3 cents to 4 cents a pack for nine months starting Feb. 1. Expected revenue: $2.1 million.
- The liquor tax will be raised by 20% of its present rate for nine months starting Feb. 1. Estimated revenue: $930,000.
- Corporation, public utilities, theatre seat and domestic insurance company tax rates will be raised by 12½% surtax on their 1955 business year returns. Estimated revenue: $4.6 million.

Frank D. Merrill, named AASHO president on Friday, Dec. 9, died following Sunday.

Newly Elected AASHO President Dies

Within hours after being elected president of the American Association of State Highway Officials, 52-year-old Frank D. Merrill (Maj. Gen. Ret.) was dead of a heart attack.

Commander of the famed Merrill's Marauders during World War II, the general has been New Hampshire's Commissioner of Highways for the last six years (ENR Sept. 8, 1949, p. 12). His successor in the AASHO post will be Rex M. Whitton, chief engineer of the Missouri State Highway Dept., who was elected first vice-president at the annual meeting last week.

During their meeting, association members called upon Congress to enact an "expanded and adequate" highway program early in the coming session and to make funds available for apportionment to the states by next July. In its resolution AASHO stated further that "the matching of funds for the construction of the interstate system should be on a 90% federal and 10% state basis, with the matching on the other systems as now provided under existing legislation.

"Such additional revenues as may be needed to finance the highway program" could be obtained from:

- A reasonable increase in the present federal motor fuel tax.
- A reasonable tax or an increase in tax on items not now taxed by the states but that will serve as a measure of highway use.
- The reasonable use of short term credit financing with due consideration to its effect upon the national debt limitation.

The collective voice of AASHO also noted that "an enlarged adequate highway program should indicate the intent of Congress to construct the 40,000-mile interstate system in not more than 15 years and to provide a progressive increase in federal aid to secondary, urban and primary systems. The initial authorization should be for a period of five years.

"A 20% transfer provision should be allowed between secondary, urban and primary allocations to make the highway program flexible enough to meet the most pressing needs of the individual states."

Commissioner C. D. Curtiss of the Bureau of Public Roads spelled out the details of an expanded highway program. He believes that proper control of access is the most important development in preventing highway obsolescence and reducing accidents. It is his view that more data and additional legislation on access control are needed.

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How to Get More Into Less

Conference tackles problem of integrating electric power and other services in modern floor-ceiling systems

One of the biggest headaches of building designers and contractors was subjected to detailed analysis last week in the hope that a remedy could be found that wouldn't kill the patient. The illness stems from the current trend to thinner floors in multistory buildings. While the space between floors and ceilings gets smaller and smaller, the amount and complexity of services that have to be incorporated in these spaces continues to increase.

Symptoms, past and present treatments and possible future remedies if the condition should worsen were discussed at a Conference on Floor-Ceiling and Service Systems in Multistory Buildings, held in Washington, D. C. The meeting, attended by more than 200 architects, engineers and manufacturers' representatives, was sponsored by the Building Research Institute, an affiliate of the Building Research Advisory Board.

• **The cause**—The headache originates in the difficulty of coordinating the work of different building trades both in the design and construction phases.

The problem confronting electrical engineering was summarized by Felix B. Graham, of Syska & Hennessey, Inc., New York City: "To design a distribution system adequate not only for the known present but for the unknown future—a system which is to be, ideally speaking, completely flexible, which can be integrated into the floor-ceiling component with all other systems and so as to require a minimum of space—all this at a minimum of construction cost."

Graham called attention particularly to the added difficulties arising from the increase in use of electronic office machines. These systems, he said, usually consist of 20 to 30 individual units accurately located and interconnected with a complexity of wires and coaxial cables. The cables are of such sensitivity that they cannot be pulled into raceways but must be carefully laid in place. As a result, an auxiliary removable floor above the structural floor is needed. In addition, air-conditioning requirements are stringent with respect to both temperature and humidity control. And the equipment may weigh as much as three tons.

• **Treatment**—Graham also cautioned structural engineers that savings in structural components may be partly offset by increased electrical costs. Furthermore, future flexibility is effected by the case or difficulty with which floors may be opened at a later date, if required. He believes cellular steel floors are ideal because of the flexibility they offer for distribution of services.

Other speakers differed with Graham on the merits of other structural systems. Henry J. Stetina, regional engineer, American Institute of Steel Construction, Philadelphia, Pa., for example, pointed to the popularity of open-web steel joists supporting a concrete floor on the top flange and a plaster ceiling on the bottom flange. Not only is this system economical to erect, he said, but the open webs permit electrical work and pipes to be installed readily. This type of construction has been used for several skyscrapers in Philadelphia and is now being employed for a 21-story hotel and a 24-story apartment building there. (Tallest U. S. structure with open-web joists is the 37-story Grant Building in Pittsburgh.).

Stetina also thought highly of concrete floors placed on light-gage steel forms that are left in place permanently. Services may be embedded in the slabs without affecting the structural strength of the floor assembly according to manufacturers' test reports. Access holes to junction boxes can be cut easily in the light-gage metal, he said.

D. L. Chaney, district manager, Portland Cement Assn., Washington, D. C., spoke favorably of flat-plate reinforced concrete construction. He called attention to economies resulting from savings in floor depth, flexibility of column arrangement, simplicity of formwork, the smooth underside that can serve as a finished ceiling and absence of obstructions to pipe and duct runs. In solid slab floors, he said, there is usually ample depth to install conduits and small pipes directly in the slab itself.

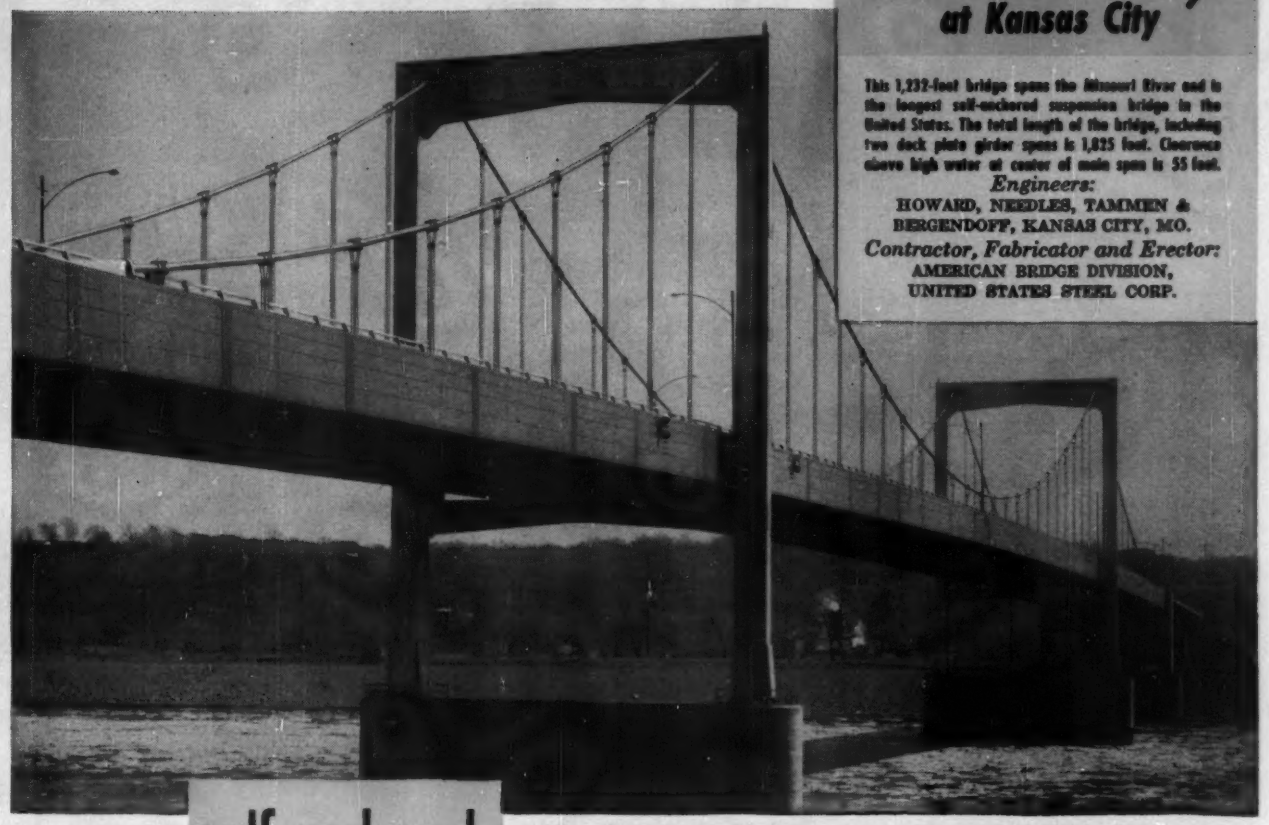
The conference also heard Elbert K. Abberley, vice president, Turner Construction Co., New York City, warn: "Without an integrated design, integrated construction is impossible," and Perry Coke Smith, of Voorhees, Walker, Smith & Smith, New York City architects-engineers, propose a design procedure with "the best chance of producing an appropriate and integrated design."

The Paseo Bridge at Kansas City

This 1,232-foot bridge spans the Missouri River and is the longest self-anchored suspension bridge in the United States. The total length of the bridge, including two deck plate girder spans is 1,825 feet. Clearance above high water at center of main span is 55 feet.

Engineers:
HOWARD, NEEDLES, TAMMEN & BERGENDOFF, KANSAS CITY, MO.

Contractor, Fabricator and Erector:
AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORP.



Longest self-anchored suspension bridge in the U.S.

built with American Tiger Brand Pre-Stressed Bridge Strand

The Paseo Bridge over the Missouri River at Kansas City, Missouri, is unique by comparison with other suspension bridges because it is self-anchored. That is, the stiffening girders themselves are designed and utilized to resist the tension of the main cables, instead of having huge anchorages at each end to resist this force.

This bridge has a 616-foot main span and two 308-foot side spans. Main cables are 12 inches in diameter and are built up of 37 strands—31 strands $1\frac{15}{16}$-inch diameter plus 6 strands $1\frac{1}{4}$-inch diameter. The cables are approximately 1,275 feet long and have a total combined strength of 27,500,000 lbs. To complete the main cables, galvanized soft steel wire is spirally wrapped around the combined strands to protect the cable and provide a smooth surface for painting.

Before shipping, the strands were pre-stressed to one half of their designed breaking strength for several hours. This is not only a thorough test of the quality of the material, but also produces a cable strand that will not stretch over the years due to use.

The stiffening girders carrying two 26-foot roadways are suspended from the main cables by 90 $1\frac{1}{2}$-inch diameter galvanized suspender ropes each having a breaking strength of 104 tons. They were also pre-stressed and fabricated to exact dimensions to fit their places in the structure without further work or adjustment.

American Steel and Wire Division is eminently fitted to handle important jobs like this. It has the engineering experience and complete manufacturing facilities to produce the finest bridge strand you can buy. Call or write for further information.

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RUGGED TRAILERS

NEW CONSTRUCTION UNITS BUILT BY FRUEHAUF

NEW HOPPER DUMP

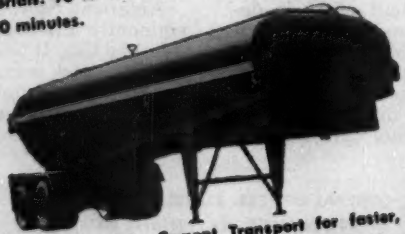
Built to handle the toughest jobs over the roughest terrain. Provides top capacity and fast, perfect dumping. Available in capacities from 10 to 65 cu. yds., depending on type of load. Equipped with windrow-hopper dump gates for controlled flow rate, or cross-hopper dump gates for combination discharging and uniform spreading.

NEW STEEL PLATFORM

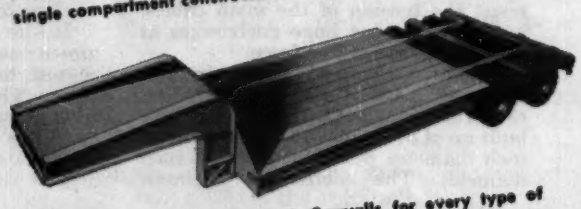
Strongest where the load is heaviest, yet lighter for extra payload capacity, this platform is built to stand up under the most rugged operating conditions. The deep, powerful main frame and sturdy, yet lightweight, pressed steel "C" type crossmembers create exceptional strength with minimum weight. Available in any length and payload capacity.

Fruehauf Twin-Screw Bulk Cement Trailer for high capacity hauling, fast, easy loading and unloading of dry, granular materials. 90 to 130-barrel capacity. Dumps full load in 15 to 20 minutes.

Fruehauf Insulated Hot Commodity Tank Trailer for safe, economical hauling of asphalt, hot oil, crude oil, road oil, tar, pitch, tallow, wax, paraffin, resin, glue, etc. Heavy shell, single compartment construction.



Fruehauf Air-Slide Cement Transport for faster, air-gravity discharging of nearly any pulverized material. Newer, simpler, quicker method of aerating bulk materials with air speeds up unloading operation. Capacities of 75 to 125 barrels.



Fruehauf Stationary Gooseneck Carryalls for every type of heavy hauling operation. Standard models from 10 to 75 tons —special units custom-built for loads up to 100 tons. Level decks, semi and full; double drops, semi and full.

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A 36' bridge, extending from the front axle of the tractor to the rear axle of the Trailer, provides for maximum bridge formula payload capacity in this rugged hoist dump. Available in capacities from 13 to 15 cu. yds., this new 24' Fruehauf dump is equipped with telescopic hoist housed in body, and steel floor corrugated longitudinally to prevent distortion.

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Provides easy, efficient front-end loading and unloading of heavy-duty equipment. Available in six models: 25-ton, 35-ton, and 50-ton, drop or level deck construction. 25 and 35-ton units are equipped with Tandem Walking Beam; 50-ton unit has Trunnion Walking Beam. All units available as full Trailers when front gear is added.

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Each unit in Fruehauf's complete line of heavy-duty construction hauling equipment is built to take the worst punishment any job can give it . . . and still keep operating dependably for *extra years* of economical service!

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Waste Treatment

Simplicity and relative economy sum up this unusual waste treatment installation for a large Southern paper mill. Primarily installed for suspended solids removal from general mill effluent, it is also doing a good job of B.O.D. reduction. The 300′ dia. Dorr Clarifier installed in an economical 500′ earthen basin removes approximately 90% of suspended solids . . . with a B.O.D. reduction of approximately 33%.

This Dorr Clarifier-earthen basin team is suited principally for use as a primary treatment unit. Additional treatment steps can be added as needed, without affecting the initial Clarifier installation.

If you have problems involving any phase of the separation of finely divided solids in suspension . . . or ion-exchange . . . or fluidizing techniques — chances are that Dorr-Oliver and its world-wide organization can help you.

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Punctuality Pays

Unfinished schools bring penalties of $100 a day

A penalty of $2,300 for failure to complete a new school on schedule has been assessed against the contractor by the Salt Lake City Board of Education.

The standard Board of Education construction contract calls for a penalty of $100 a day to be exacted from contractors for failure to finish work on time. The penalties are deducted from payments made to the general contractor on completion of the project.

The $2,300-penalty—against Alfred Brown Co.—was the first levied on builders by the board in recent years (ENR Oct. 13, p. 23). A number of other assessments are pending against tardy school-builders.

Utah contractors are calling for an end to penalties. One spokesman for the Utah Construction Industry Council, representing 17 segments of the building industry, told the board that the penalties "will cost taxpayers thousands of dollars in future bidding." He warned that the contractors would set up an allowance to cover the cost of penalties in case of unforeseen work delays.

Another representative of the Construction Council said the building industry felt that if a contractor failed to complete a job on time where situations are within his control, he should be penalized. "However, when such things as shortages of materials, strikes and weather delays cause the hold up, penalties should be waived."

The school board—which has promised to review the whole question—stated that some contractors bid on many projects, knowing that they cannot complete all of them on time.

Washington Toll Road Act Passes First Legal Test

A 1955 Washington State law authorizing construction of the $227-million Tacoma-Seattle-Everett toll road has survived its first legal test.

Constitutionality of the act has been upheld by Thurston County Superior Court at Olympia. The State Supreme Court has yet to rule on the case.

A mid-September report by the New York engineering firm of Coverdale & Colpitts established feasibility of the 65-mi project. If the State Supreme Court upholds the enabling act, condemnation for the route is expected to begin early next year. Construction, scheduled to start later in 1956, should be completed in 1959 (ENR Sept. 29, p. 376).

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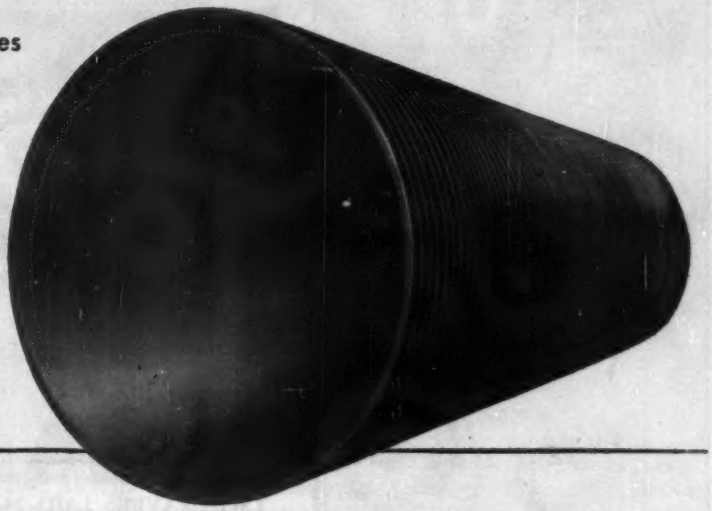
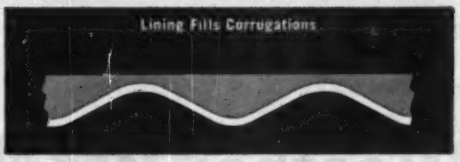
Armco **SMOOTH-FLO** Sewer Pipe Combines

Top Flow Capacity
Proved Material Durability
Corrugated Metal Strength
Watertightness

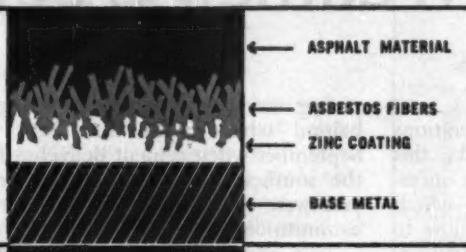
Here in a single structure—Armco SMOOTH-FLO Sewer Pipe—you can get all the qualities you need for efficient sewer design and performance.





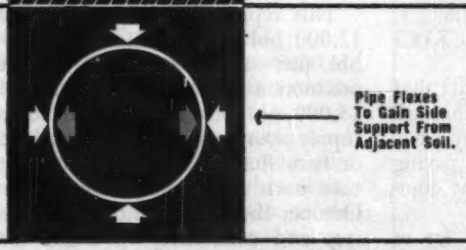
TOP FLOW CAPACITY

A centrifugally applied bituminous lining provides top flow capacity. The diagram shows how the full lining fills the corrugations to provide smooth, efficient interior.



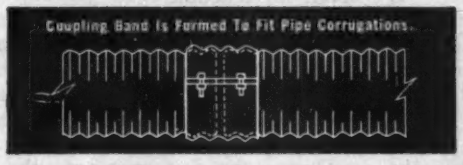
PROVED MATERIAL DURABILITY

The special-grade bituminous lining withstands heat or cold without damage. The base metal itself has extra protection from corrosion. Millions of asbestos fibers are embedded in the zinc coating and sealed with a special saturant. The result is Armco ASBESTOS-BONDED, a material that has been proved in the most severe sewer service.



CORRUGATED METAL STRENGTH

Armco SMOOTH-FLO Sewer Pipe has the flexible strength of corrugated metal design. It deflects under load and builds up side support from the adjacent soil. Thus loads are distributed around the entire periphery, eliminating the danger of cracking, breaking or crushing.



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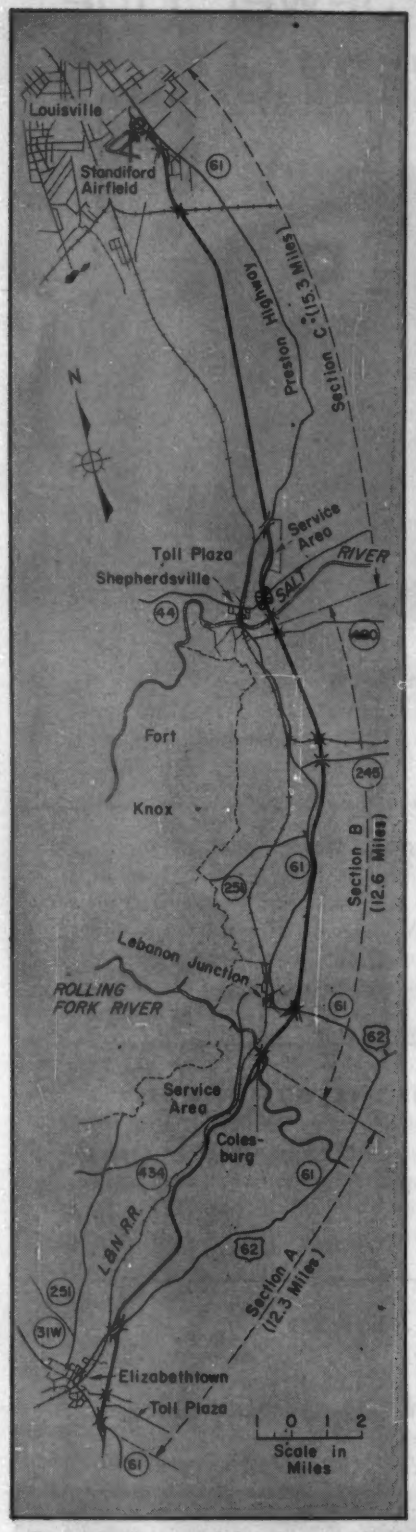
Kentucky Turnpike . . .



Connecting with Louisville's southside expressway system, now abuilding, Kentucky's 40-mile toll turnpike crosses two rivers as it wends its way past Standiford Airfield and Fort Knox to a junction with heavily traveled U. S. Highway 31W just outside of Elizabethtown.

TWIN PAVERS LAID 24-ft ribbon of concrete under threat of dwindling cement supplie

The Weather Wouldn't

Man-made cement shortages temporarily hampered paving operations on Kentucky's 40-mile turnpike this fall. But it was nature—with incessant and unwanted rainfall—which delivered the final knockout blow to all hopes of meeting the Jan. 1, 1956 target date for opening the $38.5 million toll project to traffic.

Those close to the work predict that—given reasonably good weather—all but about two miles of roadway pavement and about 50% of the paving at one large interchange will be completed this year.

But the real bottleneck—as far as opening the turnpike to traffic — is some grading in connection with shoulder work, as well as considerable bituminous shoulder construction yet to be done. Wet weather has delayed this part of the work.

Engineers in charge of the project believe it will take about two months of good construction weather next spring to complete the turnpike ready for traffic. That could mean that the four-lane divided highway — extending from Louisville south to Elizabethtown—may be carrying toll traffic as early as May 1, 1956; or at least by June 1.

• **Cement became scarce** — Roadway paving was started last May. It got behind schedule the first week in September when cement deliveries for the southern one-third of the turnpike were cut to 80% of the original commitment.

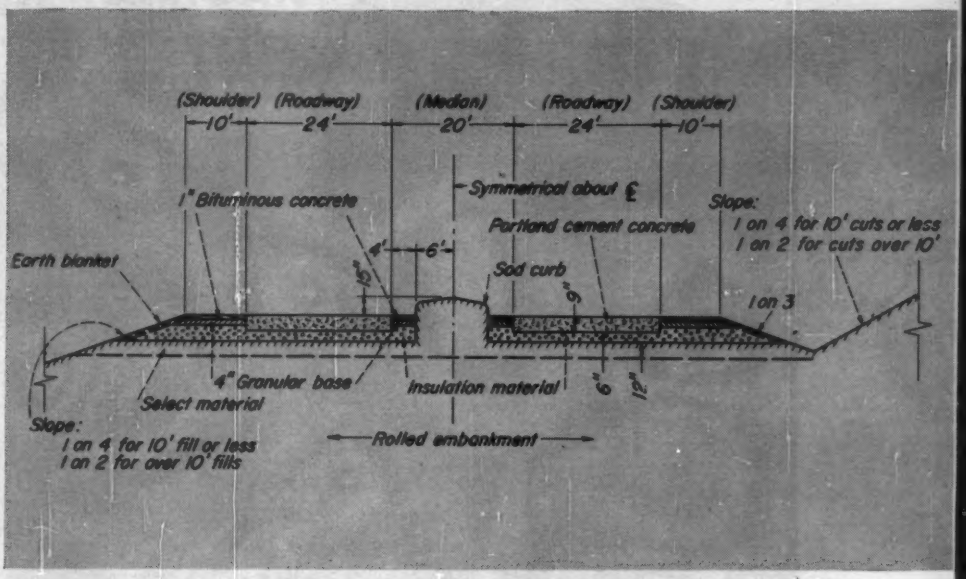
This represented a reduction from 12,000 bbl per week to about 9,000 bbl, just at the time when concrete production on that section called for 15,000 bbl per week. The cement supply worsened for the next week or two, sharply curtailing both structure work and paving. But by early October the cement shortage was easing, and concreting operations were about on schedule.

• **Rain and mud**—Rain and mud have played a delaying action throughout most of this year, hampering grading operations which, in turn, delayed the start of paving.

During the first seven months of this year there were 67 days of rain. The storms weren't so intense, but they were so spaced that there were only 24 days during this seven-month period that rain or mud didn't impair the efficiency of the work.

October was also a wet month. There were eight days of rain, staggered so that no shoulder work could be accomplished.

his fall, but worst of all . . .



OPPOSING ROADWAY PAVEMENTS are separated by a 20-ft median for safety, flanked by 10-ft stabilized shoulders for emergency parking, and supported on insulation material to prevent pavement pumping.

Cooperate

During good weather in September, however, construction went ahead at a fast clip. Veteran drill crews blasted their way through rock cuts 120 ft deep, while teams of power shovels and dump trucks disposed of the spoil.

• **Moved mountains of material**—In the earthmoving operations elevating loaders and big bottom dumps moved mountains of materials, carving a way for the turnpike through the Kentucky hills or building high embankments to carry the four-lane divided highway across deep ravines.

Following on the heels of the grading and drainage operations—and at times grinding to a halt for the lack of sufficient subgrade—came the paving crews, laying the 24-ft reinforced concrete pavement full width in a single pass. Completing the parade of basic construction operations were the bituminous paving crews laying the asphaltic concrete shoulders.

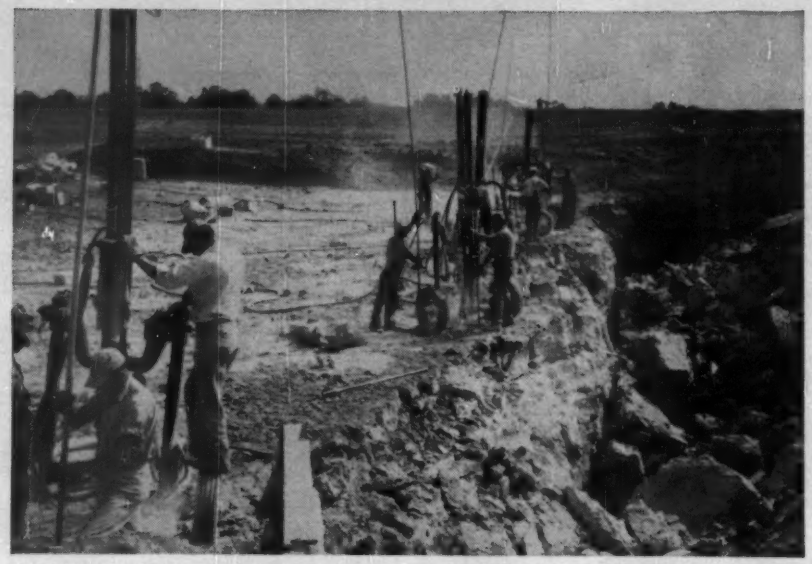
• **Job setup**—In implementing and expediting this $38.5 million project, a number of innovations were developed of interest to toll road designers and builders. The job setup, above the construction level is this:

The Kentucky State Highway Department is building the project. One firm of consulting engineers—Howard, Needles, Tammen and Bergendoff—serves as general consultant to the highway department. Three firms of consulting engineers prepared the detail designs and are supervising field construction. Each of these firms (called section-engineers), is responsible for about one-third of the 40 miles of turnpike. J. Stephen Watkins has Section A at the Elizathtown end; Tecon Engineers Inc. & Berger Associates, have Section B in the central one-third of the turnpike; and Hazelet & Erdal have Section C at

Major Quantities and Average Prices for Kentucky's 40-mile Turnpike

Item	Unit	Quantity	Unit Price (average)
Grading and Drainage:			
Roadway excavation	y	4,900,000	$0.58
Borrow	cy	4,200,000	.40
R.C. culvert pipe (15 to 84-in.)	lf	29,000	$3–$55
R.C. sewer pipe (15 to 42-in.)	lf	12,000	$3.10–$12
C.M. culvert pipe (15 to 60-in.)	lf	11,600	$4.30–$30
Clay pipe drains (6 in.)	lf	25,000	$1.40
Structure excavation	cy	75,000	4.75
Class "A" concrete	cy	16,700	42.00
Steel reinforcement	lb	2,100,000	0.11
Right-of-way fence	f	480,000	0.62
Paving:			
Portland cement concrete (pavement)	sy	1,100,000	4.75
Bituminous concrete (shoulders)	ton	35,000	7.50
Bituminous material (RT-2)	gal	165,000	0.24
Insulation course (roadway)	sy	1,300,000	0.80
Granular base (shoulders)	sy	650,000	0.62
Subbase cou[illegible]	cy	190,000	4.80
Guard r il	lf	170,000	2.80
Structures:			
Structure excavation	cy	34,000	4.00
Foundation piles	lf	68,000	4.85
Class "A" concrete	cy	33,000	56.00
Structural steel	lb	3,900,000	0.16
Reinforcing steel	lb	5,700,000	0.11

. . . Rock removal went at a fast clip



STUBBORN ROCK CUTS—such as this one of 50,000 cu yd—gave way before the staccato onslaught of a battery of wagon drills, followed by millisecond-stage blasting for minimum fragmentation and maximum rock production . . .

. . . while a pair of hefty power shovels and a fleet of end-dumps handled mucking and disposal operations.

the Louisville, or north end of the turnpike project.

• **Eighteen contracts** – Construction-wise, the project is divided into 18 contracts. With one exception, there are no "package contracts"—that is, where grading, paving and structures are bid under a single contract.

There are three grading and drainage contracts totaling $6.8 million; three paving contracts aggregating $8.9 million; four bridge contracts that add up to $3.3 million; and the one "package contract" of $2.1 million for grading, bridges and paving work on the extreme northern 2.8 miles of turnpike.

Two toll plazas with collection equipment and two service areas with necessary water supply and sewage treatment facilities to serve them are being built under four contracts totaling $2.1 million. The remaining three contracts totaling $300,000 cover roadway lighting and signing for the entire 40-mile turnpike.

The 18 contracts, together with about $1.3 million for utility and road relocations, test borings and other miscellaneous work adds up to a construction cost of $24.8 million. Adding to this $3.8 million for right-of-way, and $2.8 million for engineering, administration and legal fees brings the total project cost up to $31.4 million, according to the latest figures of the general consultant.

• **Close agreement**—This project cost of $31.4 million agrees closely with the original estimated cost in the civil engineering report that was submitted by the general consultant in April 1954.

That report pegged the estimated project cost at $34.7 million. This excluded the bond discount, but included an item of $3.2 million for contingencies. Similarly, the current estimated project cost of $31.4 million excludes both the bond discount and interest saved during construction. It also leaves intact the $3.2 million contingency fund. "Consequently," says the latest report of the consulting engineers, "there appears to be no doubt whatsoever that the project will be built within the funds available."

• **Rock excavation**—There was a lot of rock to be removed—especially where the 40-mile turnpike cuts through a number of hills near its southern end. The cuts were deep, with tremendous yardages, but fortunately, the sandstone cap rock, limestones and laminated shales in that area of the Blue Grass country lent themselves to relatively high production rates for drilling and blasting.

Since none of this rock was to be placed in the roadway embankment, no fine blasting was needed; the only criterion being to produce rock of such maximum size that it could be handled by the shovels and trucks.

• **Millisecond delays** – The drill pattern that was worked out for this particular rock cut made an ideal set-up for millisecond-stage firing of the blasting powder. Holes were drilled 5 ft on centers each way, and from 14 to 16 ft deep. They were stepped down from 2 in. to 1⅞-in. to 1¾-in., using three changes of drill steel.

Average width of the rock cut was about 115 ft. This called for an average drill pattern of 161 holes—seven transverse rows of 23 holes each. The first two rows adjacent to the exposed face of cut were wired for zero-delay firing. The third row was fired with a 1-millisecond delay and the remaining four rows at 2, 3, 4, and 5 milliseconds, respectively.

Each hole was loaded with about 30 lb of 40% strength powder, for an

average production of about 0.5 cu yd of rock per pound of powder. Working a 12-hr shift, the five-drill crews completed an entire 161-hole pattern of drilling, loading and shooting per day. Three 600 cfm compressors furnished ample air for the five wagon drills.

• **Earthmoving** – Large quantities of excavation and borrow, long hauls in some areas and low unit bid prices called for the use of large, fast earthmoving units where possible. Borrow, alone, averages 100,000 cu yd per mile of turnpike, with an average unit price of $0.40 per cu yd.

Both self-loading scrapers and big belly-dump wagons loaded by tractor-drawn elevating loaders were used to good advantage, weather permitting. Embankment materials include alluvial and residual limestone soils, silts and clays.

On one four-mile stretch of turnpike involving 2,000,000 cu yd of embankment the grading contractor moved 6,500 cu yd of earth in an 8-hr day, with an average one-way haul of 1.25 miles. To do this, he used a fleet of nine 21-cu yd belly-dumps, loaded with a tractor-drawn elevating loader that has a top rated capacity of 900 cu yd per hour.

• **Pavement design**—The two roadway pavements for northbound and southbound traffic are portland cement concrete, 9 in. thick and 24 ft wide (see cross-section). They are reinforced with welded wire fabric, and separated by a 20-ft median strip.

Supporting the pavements is a 6-in. insulating course of dense graded limestone, placed on a 12-in. compacted thickness of selected material in the top of the roadway embankment.

• **Concrete paving**—The 40 miles of twin turnpike pavements, 24-ft wide, are being constructed under four contracts. Three contracting outfits have slightly over 12 miles of twin pavements each, and the fourth has a three-mile section at the north end of the project.

Average unit contract price for the 1,100,000 sq yd of 9-in. thick reinforced concrete pavement on the entire 40-mile project is $4.75 per sq yd.

Concrete paving methods are similar on the three 12-mile contracts. Concrete aggregates and cement are shipped by rail or truck to a combination crushing, screening and batching plant set up midway of the job. Dry-

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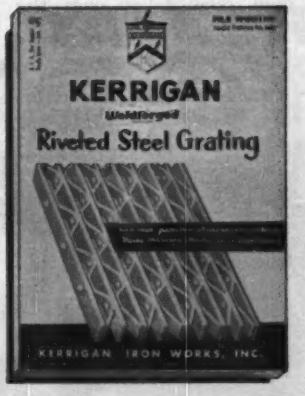

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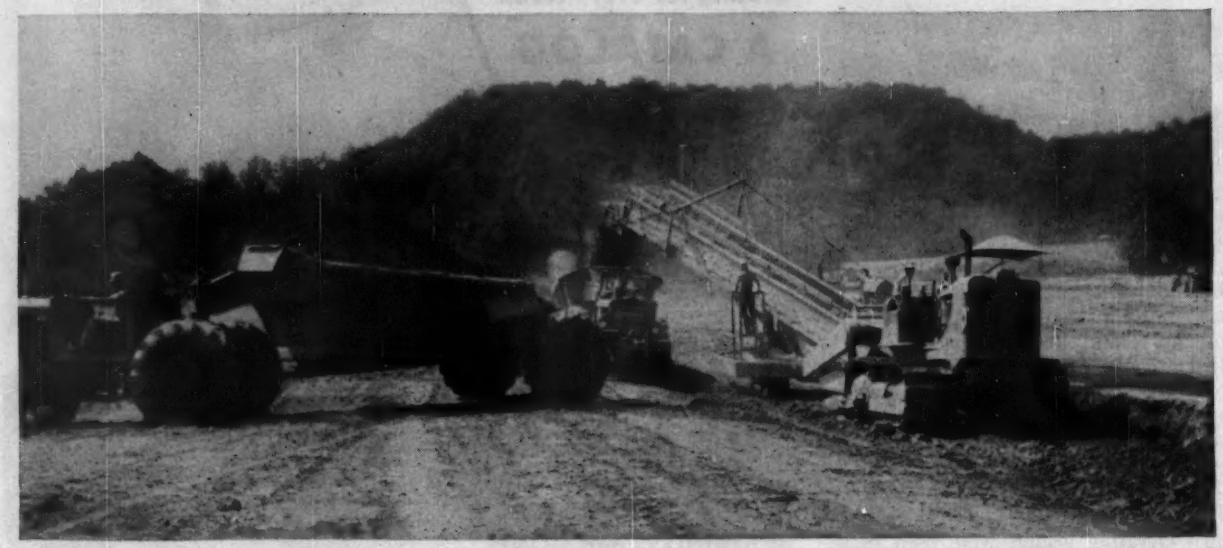

BIG BOTTOM-DUMPS and tractor-drawn elevating loader made a hard-to-beat combination for moving fill material long distances from borrow pit to roadway embankment.

batch trucks deliver the aggregates and cement from the batching plant to twin pavers at the construction site.

Following conventional practice, the first paver places the bottom 6-in. layer of concrete and the second paver adds the top 3-in., after the pavement reinforcement has been laid by hand. The reinforcement, placed 3 in. below the top surface of the pavement, is a welded wire fabric made up of No. 1 longitudinal wires at 6 in. spacing, and No. 4 transverse wires at 12 in.

• **Paving stringout**—Although the big 34E dual-drum pavers are the keystone of operations, a lot of other, equally important equipment is needed to produce the required pavement. Here is a typical stringout of equipment:

Working well ahead of the pavers, one outfit spreads, sprinkles and compacts the 6-in. layer of dense-graded crushed limestone insulation course on the previously compacted top 12 in. of selected embankment. This insulation course is saturated with about 8% moisture by weight and compacted to at least 95% of maximum density at optimum moisture content. The result is a compacted insulation course weighing about 152 lb per cu ft.

Next come the form-setters setting and pinning the heavy steel side forms for the 9-in. thick, 24-ft wide roadway pavement. A finegrader, traveling on the forms, removes any excess insulation material and insures a 9-in. constant depth pavement. A templet rolling along on the forms checks the accuracy of finegrading operations.

Concrete from the front paver is deposited between the forms and struck off to the required 6-in. depth by a concrete spreader. Workmen lay the welded wire reinforcing fabric . . . the second paver places the top 3-in. of concrete . . . and the job of finishing begins.

First a spreader spreads the low slump concrete to slightly above the top of the forms. Then come a pair of transverse finishers, followed by one or two longitudinal finishers, or bullfloats.

• **Belted finish**—From this point a six-man crew takes over the hand-finishing which is a combination of belt and burlap drag. Finally, a layer of burlap is spread over the concrete as it takes its initial set.

In hot weather this burlap is left on the green concrete for 6 to 8 hr, at which time the 1½-in. deep transverse contraction joints are sawed. Then the pavement is saturated and covered with a kraft paper for four days. The paper is then removed and the 2½ in. deep longitudinal joint is sawed down the center line of pavement.

• **Bituminous shoulders**—As shown in

BITUMINOUS PAVER lays 1-in. surface course of hot-mix asphaltic concrete on 10-ft wide stabilized shoulder along outer edge of roadway pavement, as experienced operators concentrate on making neat joint between asphalt and concrete.

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Throughout the United States, and now in South America, too. Taller Cooper toll collection equipment helps highway management serve the public more efficiently and smoothly. On Venezuela's new Autopisto that tunnels through the Andean foothills, linking the Carribbean seaport of LaGuaira with Caracas, Taller & Cooper facilities assure fast, dependable processing of tolls, and comfort and protection of personnel.

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. . . Location calculated to woo maximum traffic

the accompanying roadway cross-section, the 24-ft portland cement concrete roadway pavements are flanked on each side by bituminous concrete shoulders. The outside shoulders are 10 ft wide to permit emergency parking.

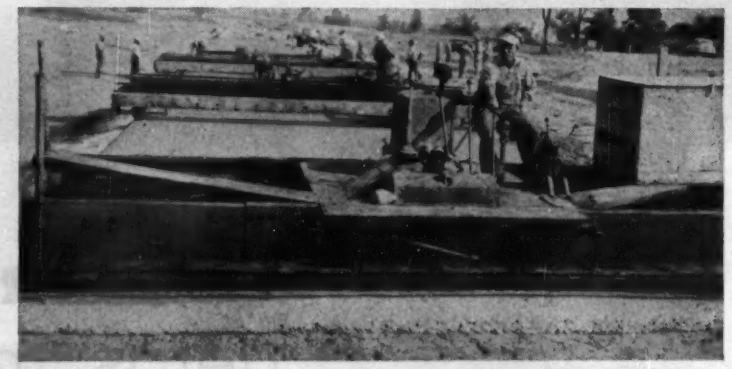
The inside shoulders are only 4-ft wide to discourage traffic. Their principal function is to form a protective transition between the roadway pavement and the 12-ft sodded and seeded raised median strip; also to encourage traffic to use the entire width of roadway pavement.

The inner shoulder along each roadway pavement is made up of a 1-in. thickness of bituminous concrete on 4-in. of granular subbase which, in turn, is supported by 10 in. of insulation course placed on top of the compacted subgrade. A prime coat of rapid curing tar (RT2) is applied between the 4-in. of granular subbase and the 1-in. surface course of asphaltic concrete, at a rate of 0.025 gal per sq yd.

The outer shoulder is similar in cross-section to the inner shoulder except for its width and the thickness of the insulation course. Since the 10-ft wide bituminous concrete surface slopes 0.5 in. per ft toward the outside, for drainage, the insulation course varies in thickness from 10 in. at edge of roadway pavement to 5 in. under the outer edge of the bituminous shoulder.

Bituminous concrete is mixed at centrally-located plants on the various paving contracts, hauled to the construction site, laid with conventional paver or finishing machine, and rolled with 10-ton tandem rollers.

Here's the Recipe . . .



Dump low-slump concrete in big pancake-like batches on insulated subgrade (at top) and spread immediately to a uniform 6-in. thickness with a jumbo concrete spreader riding on the steel road forms . . . place layer of welded wire reinforcing fabric by hand and add 3-in. concrete topping with second paver (caught with its skip up in photo at top) . . . strike off concrete flush with top of forms and finish immediately (bottom) . . . first with a transverse finishing machine (foreground), then with a pair of longitudinal finishers, followed by hand finishing with canvas belt and burlap drag . . . saw contraction joints as soon as possible, saturate and cure under paper for 96 hours, let set for 24 days . . . and that's Kentucky's recipe for its turnpike pavement.

• **Design characteristics**—The turnpike is a four lane divided limited access highway, with access confined to the two terminals and five intermediate points. It is designed for 70-mph, with 1,000-ft acceleration lanes and 550-ft deceleration lanes.

Maximum curvature is 3 deg., maximum grade is 3%, and minimum sight distance is 725 ft. In rural areas the right-of-way width is 300 ft. In establishing grade across the plains area south of Louisville, shoulder profiles were kept high enough to furnish at least 3 ft of freeboard above the high water levels of the 1937 Ohio River flood.

• **Logical location**—Starting in the southeastern edge of Louisville, the 40-mile turnpike extends in a southerly direction to a point just east of Elizabethtown (see map). At its northern end the turnpike ties in with Preston Highway (State Route 61) and an inner belt route (Henry Watterson Expressway) now under construction by the highway department.

The turnpike passes just east of Standiford Airfield and about 1 mile east of Shepherdsville where the first of two toll plazas and a service area are located. Continuing on south, it skirts the eastern boundary of Fort Knox military reservation and terminates about 1.5 miles southeast of Elizabethtown at the intersection of U. S. Highway 31W and State Route 61.

These are both heavily traveled highways for both local traffic and traffic passing through Louisville on its way to or from Nashville, Birmingham and other destinations in the Gulf states east of New Orleans.

One of the chief factors that made this a logical location for the turnpike is that it will be able to tap all northbound traffic headed for Louisville on U. S. 31W and State Route 61. Traffic reaching the north end of the turnpike will be able to bypass Louisville to the east or south by using the Henry Watterson Expressway, when it is completed sometime next year.

The state and city also have started construction on an expressway which eventually will extend from the inner belt route on north through the central portion of Louisville to the municipal bridge over the Ohio River. This will be a boon to turnpike traffic headed for Chicago and points north.

• **Service areas**—The turnpike's two

service areas—one just south of Lebanon junction and the other at the toll collecting plaza just north of Shepherdsville—are located between the two opposing roadway pavements.

This is a departure from conventional design of turnpike service areas that employ duplicate facilities outside of the twin pavements. But the single service area permits greater economy of construction, maintenance and operation, according to the designers. At the service areas the pavements are spread about 500 ft apart.

Restaurant service as well as conventional filling station services will be available at each service area.

• **Toll charges**—Toll rates have not yet been established. But a "Traffic and Earnings" report, prepared by Coverdale & Colpits in May 1954, recommended per mile charges of 1.5c for passenger cars, 2.5c for two-axle dual-tire trucks and 4.0c for truck-trailer combinations.

They estimated that 2,998,000 vehicles of all classes will use the turnpike during its first full year of operation, at an average toll of $0.64 for a gross revenue of $1,920,000. They also estimated that automobiles would save 21 min. and trucks 38 min. by driving the entire turnpike instead of existing highways connecting Louisville and Elizabethtown.

• **State Highway role**—From the Kentucky Department of Highways' standpoint, its 40-mile turnpike is just another state highway project, although it is in a class by itself. Responsibility for the entire project is assigned to A. O. Neiser, assistant state highway engineer, reporting to D. H. Bray, state highway engineer.

About three-fourth's of Neiser's time is devoted to the turnpike, which is also charged for any services rendered by the department's design, engineering, laboratory, right-of-way and other divisions. This arrangement works efficiently and is believed to represent a minimum of over-head expense.

The highway department purchased all of the right-of-way for the turnpike, and held lettings for awarding the construction contracts.

• **Legislative authority**—State legislation in 1950 gave Kentucky its turnpike law, and empowered the department of highways ". . . . to plan, finance, construct and operate toll roads. . . ."

The turnpike act was thoroughly tested in the courts and $38.5 million of bonds sold in June 1954 to finance the project. The interest rate was 3.4%. In the meantime design plans were being prepared, and bids for the initial construction were taken within two weeks after the bonds were sold (ENR June 10, 1954, p. 21).

By virtue of being empowered to build the turnpike, the highway department believes it has saved considerable on the cost of the project as compared with the costs of operating under a special turnpike commission, with its management and engineering staff.

For one thing, it was able to finance the feasibility and preliminary engineering studies, the preparation of design plans, and to advance the project up to the point of letting without the need for an advance sale of bonds. Another saving was the adoption of a number of the department's standard road and bridge design criteria and specifications, for the turnpike. This was reflected in contract bid prices that under-ran engineers' estimates.

• **Field engineers**—At the peak of construction activity there were about 80 field engineers and technical personnel employed on the turnpike by the general consultant and the three firms of section engineers.

Amos F. Humphrey, Jr. is project engineer for Howard, Needles, Tammen and Bergendoff, reporting to R. N. Bergendoff, partner-in-charge of the project. C. W. Lovell, M. F. Rudolff and R. H. Wood are project engineers on turnpike Sections A, B and C, respectively.

'56 Operations of Missouri River Dams Again Will Reflect Low Water Yield

Two years of subnormal flow in the Missouri River are mirrored in the operating plans for the Army Engineers' Missouri River dams for 1956, which have been approved by representatives of Missouri Basin states and federal agencies concerned.

The power situation most acutely reflects the water situation. It is complicated by the fact that the first two generators at Garrison will come on the line behind schedule. The first unit is due to be put in service in January and the second in February.

The effect will be sharpest during the 1955-56 winter peak period, when the navigation season is closed and water releases are cut down. Requirements will be adequately served when water releases are increased for the 1956 navigation season.

Declared the operating plan drawn up for 1956: "The construction delay in placing the first two units on the line at Garrison coupled with the deficient water supply will require close scheduling of operation to meet the firm power requirements of wholesale customers in the region during the 1955-56 winter period. It will be possible to avoid any curtailment of load at the consumer level."

The outlook as regards power:

• **Fort Peck**—"The full requirements in the Fort Peck area can be met by importing up to 20,000 kw from Canyon Ferry (to the west) to meet the expected peaking requirement of 80,000 kw.

• **Fort Randall**—"Unless the present outlook for water supply improves substantially Fort Randall generation will be limited to about 70% of earlier firm power commitments to purchasers, until the second unit comes on the line at Garrison in February, with the deficiency to be met by imports and interchanges."

• **Garrison**—"The first power unit at Garrison is scheduled to be completed for local service in January and with completion of the second unit in February the plant can be interconnected with Fort Randall for system operation."

Other phases of water usage:

• **Navigation**—"There will be no delay in opening of the 1956 navigation season regardless of early spring water prospects. The season can be extended through mid-November with either median or lower quartile conditions. In the event of adverse stream flow conditions the season would have to close considerably earlier than desirable."

• **Flood control**—"All requirements will be met under all conditions of water supply considered. With the large blocks of unfilled storage available in Fort Peck and Garrison, they will fully control any probable floods originating in their drainage basins. With Fort Randall and Gavins Point operable during the 1956 flood season, large reductions would be made in peak discharges of any floods which may originate between Garrison and Gavins Point. A flood like that in 1952 (history's worst) would be reduced to essentially nondamaging stages on the Missouri River downstream from Gavins Point."

• **Water supply and sanitation**—"All minimum sanitation requirements in Montana and the Dakotas and on the lower river at Sioux City, Omaha and Kansas City would be met even under the most adverse flow conditions. In the event of unbalanced water supply, some problems may be experienced in connection with the level of water intakes at certain localities in the Dakotas."

At last! Tube and flap

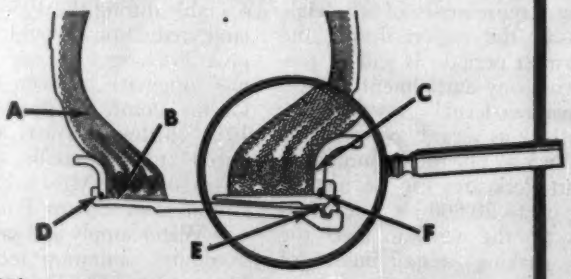
ANOTHER GREAT FIRST BY GOODYEAR
ends a major cause of down time on even the largest earth-moving vehicles!

TUBELESS TIRES

BUILT WITH 3-T NYLON CORD
***plus* EASY-MOUNTING TRU-SEAL RIMS!**

Made in all earth-mover and grader types — including new Wide-Base and Conventional Cross Sections!

How Goodyear Engineering assures quick, Airtight, Tubeless Assemblies:



(A) 3-T NYLON CORD plies allow no air-seepage through tire.

(B) New-angle bead-base hugs Tru-Seal rim.

(C) Tru-Seal rim employs same general mounting principles as conventional rims.

(D, E, F) Tru-Seal rubber rings press into locking grooves, hermetically seal entire assembly—*automatically!*

Ever since it was first rumored that Goodyear engineering had scored again—that tubeless tires in even the BIGGEST SIZES were on the way—the earth-moving industry has buzzed with questions:

How can such huge tubeless tires be safely mounted?
How can they be made to hold air?
Will they actually end all need for tubes and flaps?
Will savings make change-over worth while?

THE ANSWERS ARE HERE—AND PROVED! Yes, proved in actual commercial operations—in iron mines, coal mines, copper mines, big road, dam and construction jobs—*and not a single case of major trouble of any kind has been reported!*

In fact, reports have been the most unconditionally enthusiastic in years! They're *attested* reports that add up to cost-cutting advantages like these:

troubles are gone forever!

EVEN THE *PRICE* IS WONDERFUL NEWS!
Goodyear's new tubeless earth-mover tires cost you no more than conventional tires with tubes.

No more expensive down time because of tube and flap trouble!

No more expensive tube replacement—a big factor on many jobs where tires outlast 2 to 3 tubes!

Faster, easier mounting and dismounting—no more double inflation, no more tubes and flaps to handle—and NO complicated mounting methods to learn!

Truly airtight assembly—Goodyear's exclusive 3-T NYLON CORD forms leakproof air chamber—and Tru-Seal rims *hermetically seal* the assembly!

Cooler running than conventional assemblies—means greater safety, longer tire life on long, heavy duty!

Slow leaks instead of blowouts—small, unnoticed injuries lead to blowouts in conventional tires. In Goodyear tubeless earth-movers, they may be detected and repaired *before* costly, dangerous damage!

Simpler, re-usable valve-parts—Goodyear's tubeless valve program means fewer parts to stock, less costly parts that can be used over and over again!

Goodyear tubeless earth-mover and grader tires will soon be available on new equipment from leading manufacturers.

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High Proof of Performance . . .

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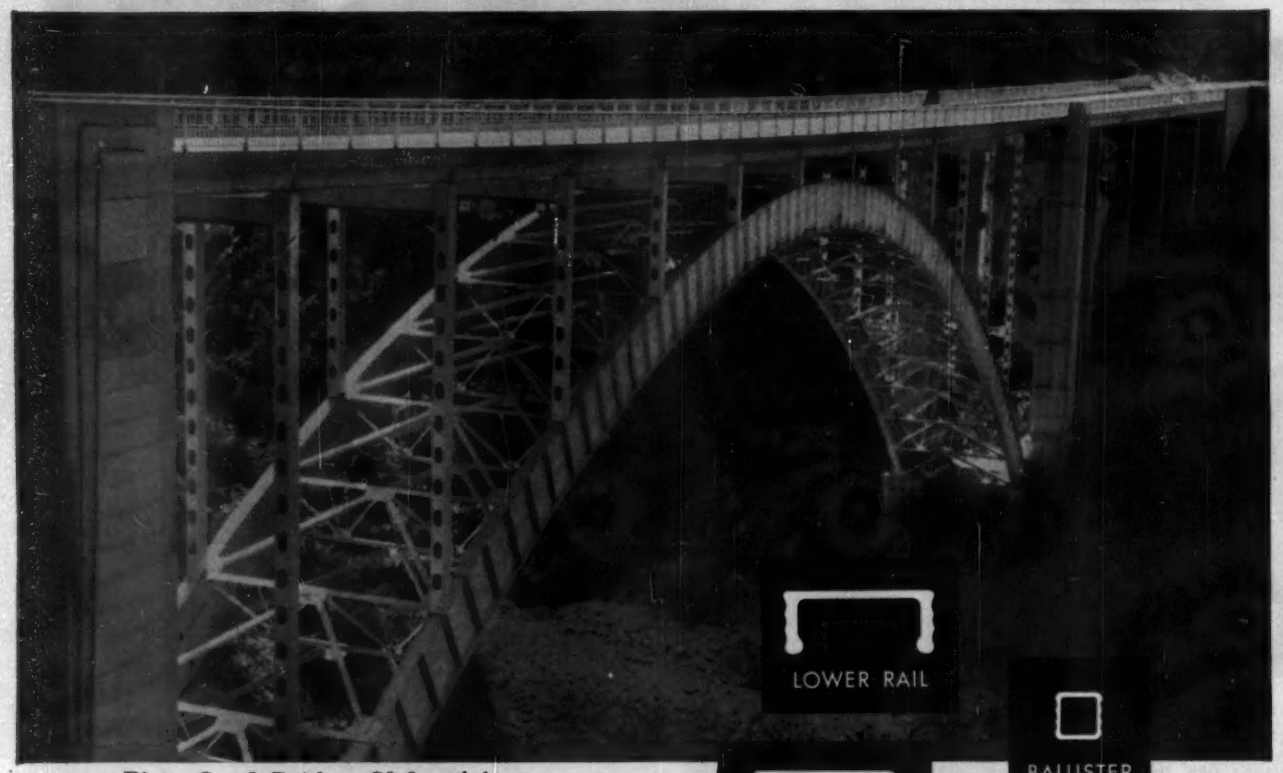

Pinto Creek Bridge, Globe, Arizona

Engineers:
Arizona Highway Dept., Bridge Division

Fabricators:
Allison Steel Manufacturing Co.,
Phoenix, Arizona

High over Pinto Creek Canyon, railings of Reynolds Aluminum withstand weather without painting or maintenance . . . fit modern bridge design . . . and provide ample strength at low installed cost. This railing is the "vertical" type, assembled entirely from extruded sections (profiles shown). These extrusions are standard, produced on order from standard dies. Other types of bridge railings utilize Reynolds Aluminum Pipe, which is a standard mill product available through regular distributors. For sources of standard products and for advice on special aluminum requirements, call the nearest Reynolds office listed under "Aluminum" in classified directories. For booklet, "Aluminum Bridge Railings," write to **Reynolds Metals Company,** General Sales Office, Louisville 1, Kentucky.

For quick reference see Catalog $\frac{5a}{Re}$ in Sweet's Architectural file.

REYNOLDS ALUMINUM

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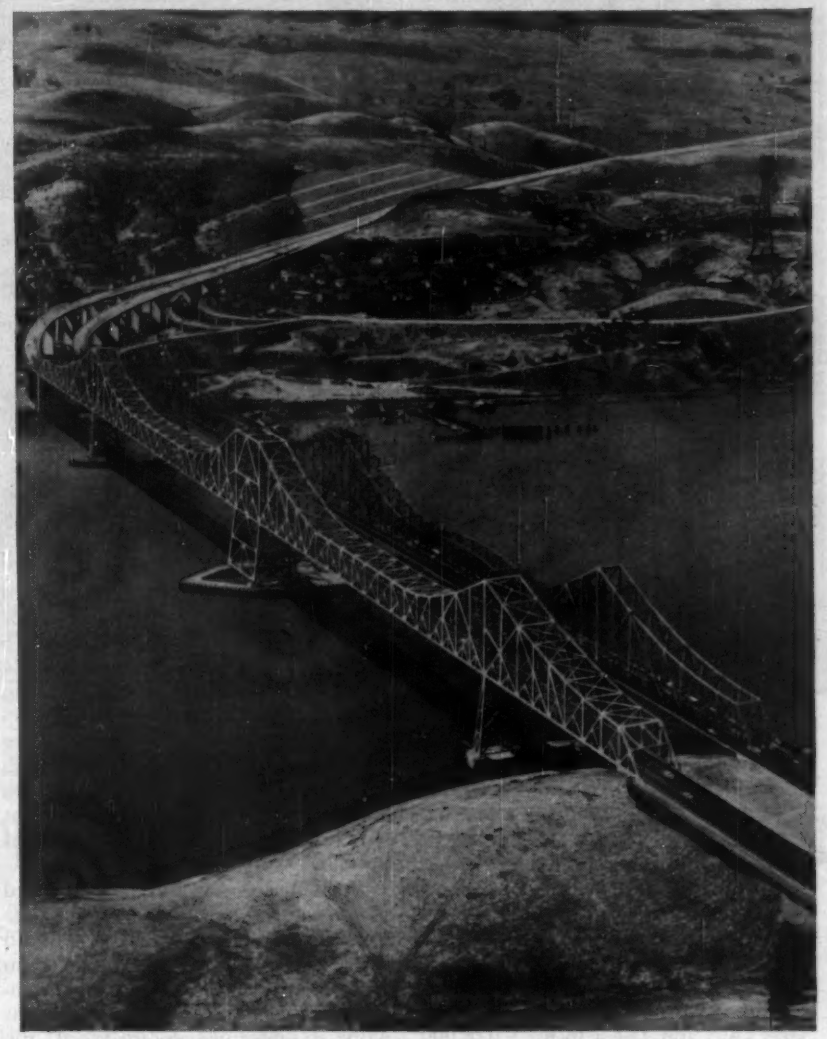
Carquinez Bridge: An Exercise in Bidding

- **High strength steel reduces weight**
- **Fabricated by welding**
- **Field connected by bolting**
- **Caissons in 100 ft of water**
- **An approach cut 300 ft deep**

Bidding as a fine art was reflected in the four major contracts for construction of a cantilever bridge across Carquinez Straits—an arm of San Francisco Bay—and its approaches.

The bids, totalling $27 million, were opened last week (ENR Dec. 8, p. 27). They relate to a bridge structure that will feature extensive use of a new high strength steel, fabrication by welding and bolting of field connections; and to spectacular deep water caisson work and an 11,000,000 cu yd road excavation.



PARALLEL BRIDGES will cross Carquinez Straits on completion of work just bid. The new bridge (left) will carry four lanes of north bound traffic. The two near piers will be founded on open caissons. Approach freeway (background) includes a huge cut requiring more than 8,000,000 cu yd excavation.

• **Close bids on steelwork**—Largest job and closest bidding was the superstructure contract with American Bridge Division of U. S. Steel Corp. submitting a low bid figure of $9,489,126. Second low of four bids submitted was $9,523,960 that came from a joint venture of Judson Pacific Murphy-Kiewit. This latter group consisting of Judson Pacific-Murphy Corp., Fred J. Early, Jr., & Co., Inc., Peter Kiewit Sons Co., and Stolte, Inc., startled West Coast construction circles three years ago by bidding $6 million low on a $21 million contract for the Richmond-San Rafael Bridge superstructure. The spread on the Carquinez bids was less than $35,000.

On close bidding of this sort it is hard to pinpoint just where the job was won or lost. JPMK submitted a much higher bid figure on ordinary structural steel (A7) but was lower on low alloy structural steel (A242) and high strength alloy structural steel (T1). Specifically, American bid 24.17¢ per lb and JPMK 30.91¢ per lb on 12,880,000 lb of structural steel; American bid 27.52¢ per lb and JPMK bid 23.15¢ per lb on 10,740,000 lb of low alloy structural steel; and American bid 34.76¢ per lb and JPMK bid 30.58¢ per lb on 5,820,000 lb of high strength structural steel.

Strangely enough, American Bridge held the contract for the original Carquinez Bridge 30 years ago. And nearby is one of the biggest bridge jobs that American Bridge was ever on—the San Francisco-Oakland Bay Bridge.

Bidding on other contracts was not so close. Low bidder for the substructure work was Mason & Hanger—Silas Mason Co., Inc., and F. S. Rolandi, Jr., Inc., with a figure of $5,454,694. Second low bidder was a joint venture of Ben C. Gerwick, Inc., Morrison-Knudsen Co., Inc., and McDonald, Young and Nelson, Inc., with a figure of $5,578,845. There were a total of five bids with the highest being $6,220,318.

Sponsoring contractor on the low bid joint venture is a relatively recent merger of Mason & Hanger and Silas Mason Co. Both of these old-line firms have done much subaqueous work in the New York area, currently including the under-river section of the third tube of the Lincoln Tunnel. They are also participating in a contract for alteration and operation of both the Cornhusker Ordnance plant, Grand Island, Neb., and the Iowa Ordnance plant at Burlington, Iowa.

• **Low figure on excavation**—The second biggest contract to be financed by the Carquinez Bridge revenue bond issue is a three-mile approach freeway at the south end of the bridge. The job is highlighted by a tremendous 8,000,000 cu yd highway cut. Low bidder with a figure of $7,089,690 was a joint venture of Ferry Bros., John M. Ferry, Peter L. Ferry & Son, and L. A. and R. S. Crow of Glendale, Calif. They were nearly a half million dollars below the second of 10

bids which was $7,583,189 submitted by McCammon-Wunderlich Co. and Wunderlich Construction Co. of Palo Alto.

The Ferry-Crow low bid seems to be largely due to a low figure on excavation. The Ferry-Crow bid was 25.6¢ a cubic yard for 11,200,000 cu yd of roadway excavation while the McCammon-Wunderlich bid on this item was 33¢ a cubic yard. On another large bid item, 455,000,000 station yards of overhaul, Ferry-Crow bid 2 mills whereas the second bidder bid 2.2 mills.

Both the Ferry groups and the Crow organization are experienced earth moving contracting firms in California. They have not previously joint ventured together. John and Peter Ferry have separate contracting firms, but for large projects frequently join forces as Ferry Bros. Recent big jobs include a 4,000,000 cu yd levee job at Willow Slough on the Sacramento River, Bear Creek Dam near Modesto, Calif.—a 1,000,000 cu yd job—and the first stage of Folsom Dam. The Crow organization did 2,500,000 cu yd of earthwork on LeRoy Anderson Dam in Santa Clara County and built the Bureau of Reclamation's Glen Anne Dam near Santa Barbara.

Final contract bid at this time was a complicated interchange between the bridge and the freeway with Peter Kiewit Sons Co. submitting a low bid figure of $4,661,462. Second low of the 11 bids with a figure of $4,843,449 was a joint venture of Walsh Construction Co. and J. H. Pomeroy Co. Steel for more than 60 welded plate girders was a major bid item, with the low bidder bidding 17¢ a pound for 3,496,000 lb of structural steel (A7) and 18¢ a lb for 5,028,000 of low alloy structural steel (A242). The second low bidder bid 16¢ a lb and 20¢ a lb for these items.

• **Superstructure**—In general appearance the new bridge is a carbon copy of the old Carquinez Bridge built 30 years ago (ENR Sept. 24, 1925, p 504 and ENR, March 24, 1927, p 484). The structure has two 1100-ft long cantilever spans, two 500-ft long side spans, and a 150-ft mid-crossing tower span. And there is the same 138-ft clearance above mean sea level. But the new structure is wider—60 ft center to center of trusses for a four-lane road instead of 42 ft center to center of trusses for a three-lane road. And the suspended spans of the new bridge have straight instead of arched top chords.

The most important differences between the old bridge and the new lie in design of the individual truss members. Many will be made of a high strength steel (Carilloy T1) marking the most extensive bridge use of this relatively new steel. And the members are made of welded plates rather than being built up by stitch riveting. Finally, all field connections are to be made with high strength bolts rather than rivets.

Use of the high strength steel in major tension and compression members has the obvious advantage of saving weight because members can be made smaller. This has the effect of reducing moment of inertia of the members with consequent significant reduction of secondary stresses. The sum total represents an important cost saving.

An example of the weight and area reduction from the use of T1 steel is shown by one of the major top chord members, which is made of three plates having an area of 117.19 sq in. and a weight of 400 lb per ft. This compares with an area of 220 sq in. and a weight of 748 lb per ft had low alloy steel (A242) been used.

The T1 steel has a yield strength of 90,000 psi, a working stress for tension of 45,000 psi and working stress for compression members of $36{,}000\text{-}1.75\,(L/r)^2$. These values are about twice allowable stresses for low alloy steel. T1 steel was developed by U. S. Steel Corp., and other steel companies have been licensed to make it. The job calls for 2,910 tons of T1 steel as compared with 6,440 tons of regular structural steel (A7) or 5,370 tons of low-alloy structural steel (A242).

Welding has substantially simplified design of the truss members. The number of sectional types is reduced to three—H-sections for tension members, box sections for ordinary compression members and box sections with an intermediate plate at the center for the heaviest compression members.

In the box sections, perforated cover plates are used in place of the old lattice style connections. Result is simpler fabrication and easier maintenance. An example of the simplification is shown by one of the major lower chord members. The design calls for five plates requiring eight fillet welds totalling 340 ft of ⅞ in. automatic fillet welds. A stitch riveted member at the same location would require eight vertical plates, four angles and two cover plates. And more than 1,000 rivets requiring in excess of 3,600 punched and reamed holes would have been needed. All welds are to be made automatically.

As to the use of high strength bolts, the designers of the new Carquinez Bridge are convinced that field connections made with them will be superior to similar connections made with rivets.

• **Substructure**—One of the more spectacular construction phases of the new bridge will be the three open caissons required for the deep water piers. Such caisson work has been done before—as for example, at the San Francisco-Oakland Bay Bridge and the Tacoma Narrows Bridge. But there is always some degree of risk involved in deep caisson work in swift water.

The concrete units will be 102 ft long, 53 ft wide and 150 ft high. They will be sunk to bedrock at about 135 ft. below water level with water depth being 80 to 110 ft. The rest of the depth is through gravel, sand and mud. One of the caissons will support the north tower and two of them the center tower. The south tower will be founded on a pile-supported pier built in an open cofferdam.

Perhaps the most significant design improvement in the substructure work is the fender system. It will be based on 150 ft long 24 in. dia. steel pipe piles driven (some on a batter) through the mud into bedrock and filled with concrete. The fender system on the old bridge is founded on concrete piles that are only about 100 ft long, being driven into rock fill placed around the caissons. The fill was needed to compensate for scour as well as to support the fender.

• **South approaches**—The other two contracts are for south approaches. Crockett Interchange is a complex system of elevated viaducts that will carry traffic from the bridge elevation across a narrow section of the small town of Crockett to the hill behind. The interchange is a multiple span welded plate girder structure with reinforced concrete deck supported on reinforced concrete bents, piers and abutments on steel pile foundations. It will provide two clear roadway widths of 52 ft with approach ramps. The interchange requires more than 60 welded steel girders with the biggest being about 175 ft long and 12 ft deep.

The Contra Costa Freeway would by itself be a standout job were it not dwarfed by the bridge structure. Included in three miles of divided highway (two 36-ft roadways plus paved shoulders and a 10-ft center strip) is 11,000,000 cu yd of roadway excavation. More than 8,000,000 of this comes from one cut in the hills just behind Crockett that will have a maximum depth of almost 300 ft and be nearly ¼-mile wide at the top. The big cut will have 2 on 1 slopes including 30-ft wide benches each 60 ft of elevation. The alternate to taking the highway through the big cut was an alignment that would include a sharp bend at the south approach. Such a curve would be an

accident hazard. And the more circuitous route might have been more

Photograph shows a section of the Langley-Bath Clearwater High School, located at Bath, Aiken County, S. C. It received design awards in the AASA-AIA School Building exhibition and the South Atlantic AIA Regional Honor Awards Program and from the School Executive magazine.

Lyles, Bissett, Carlisle & Wolff, architects.
E. M. Spong Construction Co., general contractor.
W. O. Blackstone & Company, plumbing and heating contractor.
All of Columbia, South Carolina.

YOUNGSTOWN PIPE installed in award-winning school

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THE Karnak long-fibre-cotton cloth, which has been saturated with specially prepared asphalt, is layered, on the job, with alternate moppings of a highly refined and very ductile asphalt. The open mesh of the fabric allows the coating to penetrate and interlock the layers. This provides a firm mechanical bond that resists abrasions, cracks, settling and maintains water resistance through the life of the structure.

Karnak Fabric is non-sticking, unrolls easily to the very end . . . works faster with no waste. It is packed in sturdy corrugated cartons for protected shipping and storage. Available through waterproofing contractors, or distributors or write us for information. *Made by Lewis Asphalt Engineering Corp., 30 Church St., New York 7, N. Y., Dept. 212.*

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accident hazard. And the more circuitous route might have been more expensive. Against this had to be weighed the disadvantage of cutting a swath through the small town of Crockett as well as geologic uncertainties in the big cut. Investigation showed the geology was favorable, so the big cut route was adopted.

For both the superstructure contract as well as the Crockett interchange contract, the work must be sufficiently complete in 1,010 calendar days to permit operation for collection of tolls. Each of these contracts has a $7,900 a day penalty clause should this limit not be met. And each requires the entire job to be done in 1,065 calendar days.

The substructure contractor must complete the entire job in 730 calendar days. But piers and abutments must be ready for structural steel in a much shorter time—ranging from 309 to 600 calendar days. Penalty for failure to have a pier or abutment ready on time is $7,900 a day.

The Contra Costa freeway contract on the other hand has a time limit of 570 working—not calendar—days for use of the facility. But the same $7,900 a day penalty clause is called for. It is expected that the freeway and bridge will be open to use at the same time. An interesting phase of the freeway contract is that the specifications caution the contractor that the work will require more than a single shift throughout the life of the contract to complete the work within the time limit.

Next spring a final major construction contract will be bid. That will involve the toll plaza and a highway connection at the north end of the bridge. This work, expected to cost in excess of $2 million, will complete the Carquinez project to the point where tolls can be charged.

48 Sewage Treatment Plants Under Construction in Ohio

Forty-eight municipal sewage treatment plants now under construction throughout Ohio are scheduled to be completed by 1958 at a cost of more than $100 million.

When the projects are completed 80% of the state's urban population will have adequate sewage disposal facilities. At present, some 1,250,000 city dwellers are served by facilities that are considered satisfactory. The new plants will serve an additional 3,000,000.

Ohio's six largest cities—Columbus, Cleveland, Akron, Cincinnati, Toledo and Dayton—are spending $80 million on sewerage. In addition, 26 smaller cities and 16 villages are financing projects to end stream pollution.

Circular field layout of concrete pipe plant

RADIO helps build roads, level rough country, fight fires in the California mountains

Archibald's two-way radio-equipped supervisory vehicles, and special units such as the roving greasing truck (above), coordinate as many as 12 widely separated projects with the San Carlos head office. Radio keeps all units under constant supervision, saves time, money.

J. O. Archibald Co., San Carlos General Engineering Contractor Uses G-E 2-Way Radio . . . Keeps Equipment Working A Dozen Jobs At One Time.

ORDERS from the head office of the J. O. Archibald Company are dispatched to supervisors on the job by two-way radio. Company operations, sometimes widely separated, cover the San Francisco peninsula area and surrounding mountain districts. Yet all projects are under radio direction—through two-way radio equipped supervisory vehicles.

Archibald operates under private and government contracts for road building, pipeline installation, and earth moving projects of all kinds. When needed, company equipment helps fight fires threatening vital lumber lands.

"Radio Has Paid For Itself Many Times . . ."

"Our G-E radio has paid for itself many times over", say Archibald officials. "It saves us time, is convenient, speeds parts and men to projects, permits prompt response to emergency calls." The company reports excellent coverage with low band equipment—a 60 mile average from base to car, at times up to 60 miles car to car. A remote relay transmitter atop a mountain four miles from the base station helps overcome terrain interference.

Progress Line Offers New Advantages

The new G-E Progress Line of two way radio saves money on maintenance through faster servicing, protects from obsolescence because chassis are interchangeable. Changes in frequency, power, type of reception are made quickly at a minimum cost. See your local G-E Communications Counselor for full details. Or, write to: *General Electric Company, Communication Equipment, Section X22125-15, Electronics Park, Syracuse, New York.*

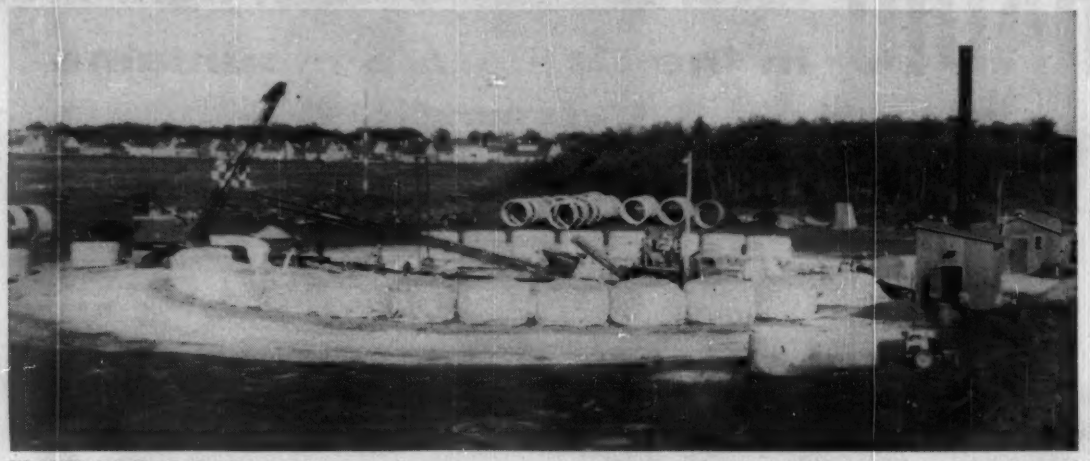
2-WAY MOBILE RADIO

Progress Is Our Most Important Product

GENERAL ELECTRIC

shaping the bell end of the pipe. Base ring, pallets and casting slabs were

Circular field layout of concrete pipe plant proves economical in Canadian city

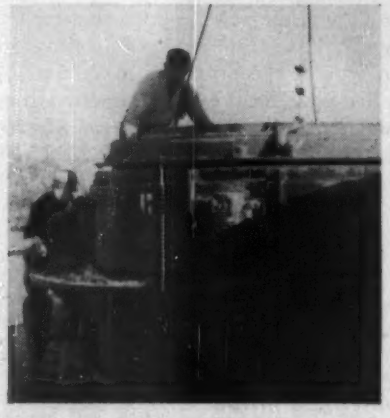


PLANT IN THE RING continues pouring operations while bag-covered units in foreground are steam cured and older pipelengths (background) await removal.

CONCRETE RING PALLET forms bell end of the 90-in. concrete pipe unit.

ACTION IMMEDIATELY AFTER POUR is re-assembly of form set for next pour. Precast concrete track on which long conveyor travels is seen in left foreground.

90-in. Pipe Hatched Every 16 Minutes



TONGUE GOES INTO PLACE last in preparation for casting. Note one of four low-frequency, high amplitude vibrators mounted on outside shell of form.

A reinforced concrete manufacturing plant that combines extreme portability with unusual production records is turning out 72-in.-dia, 86-in. and 90-in. pipe "like so many doughnuts" in the village of St. James, Manitoba, Canada. The village, located on the outskirts of Winnepeg's International Airport, has become increasingly alarmed at inadequacy of drainage in the area where residential developments have been springing up and flash floods are a common spring and fall occurrence. To protect against considerable damage that could be incurred, a main storm outfall line is being installed.

Because of difficulty and expense of transporting finished pipe to the site, it was decided that the solution was to manufacture 2,000 ft of the largest size, 2,000 ft of the 86-in. and 5,000 ft of the small size pipe as quickly and as close to the installation site as possible. Design of the plant was turned over to Manitoba Supercrete, Ltd., of St. Boniface (Winnepeg), whose plant superintendent, George Poitras enlisted the services of the George W. Hoffmann Co., of Sioux City, Iowa and its "Vibrapipe" process in layout of the plant, whose operation Poitras would supervise.

• **One form, single mixer**—Laying out a circle of 100-ft dia Poitras supervised placement of 32 concrete slabs on its perimeter, each large enough (112-in-dia) to accommodate a 90-in. form, 50 inches high. On each slab was cast a concrete base ring pallet into which a single form fits, thus

shaping the bell end of the pipe. Base ring pallets and casting slabs were stored and new ones poured for each of the other sizes after the 90-in. lengths were produced.

With a portable mixer and a short conveyor located at the pivot point in the circle, a 2-ft-wide track made up of precast concrete segments forms a 30-ft-dia ring on which a 60-ft conveyor and skip hopper roll in a 360 deg circle. Concrete travels from the mixer by means of short conveyor to the storage hopper thence to the 80-ft conveyor from which it is cast by a turn-head-loader into the special casting form.

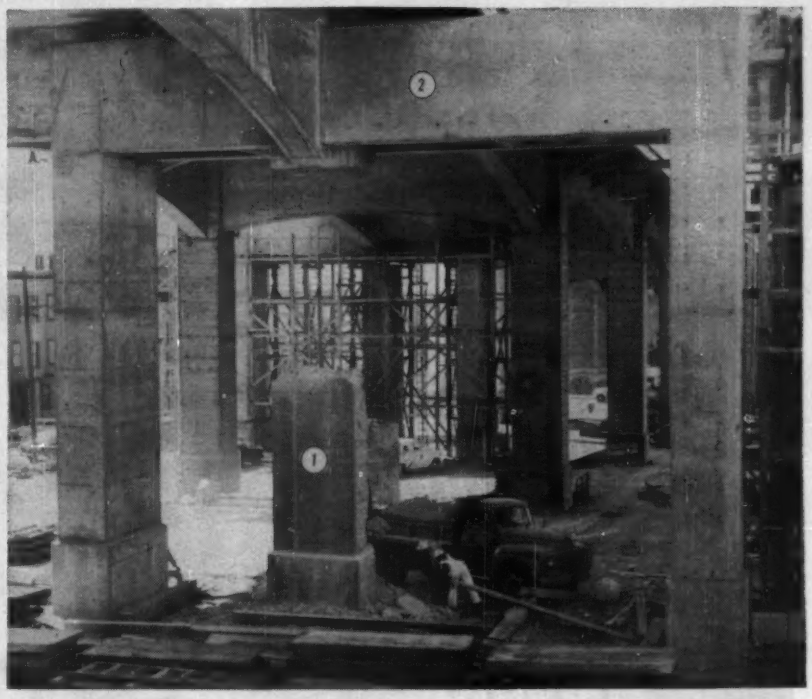
The form, supplied by Hoffmann, comprises a two-piece outer shell equipped with four 1,000-lb vibrators, and an inner core-cover-hopper shell with a conical top for concrete placement. Capping the form is a tongue-forming header that completes the set. All are placed and stripped by a crane with a 20-ft boom.

The sequence of operations in resetting the form starts with the stripping of the core section and its placement in the next ring pallet. Outside jacket follows as the second step, then the core-cover and hopper are set in place. The tongue forming header caps the operation and casting is resumed.

Relatively dry concrete is placed under continuous vibration, and as soon as one length has been cast, the header and core-cover-hopper are moved to the next base and the rest of the forms are stripped and the operation is repeated.

As soon as the form is clear of the finished pipelength, the "green" casting is covered with a plastic bag to protect it from wind and sun, and for about two hours the pipe remains under the cover. Then steam is piped into the plastic bag from a portable boiler located at one end of the plant. Twelve hours after casting the crane lifts the new pipe unit off the concrete base and lays it on a platform for air curing. With the mixer—a small machine with dual-axle, 4-bladed paddles rotating in opposition—operating at a capacity of about a yard of concrete every two minutes, and with freshly cast pipe moving off the casting ring at short intervals once the plant is in full operation, the plant has been turning out as many as thirty 90-in. pipe per day and up to forty-five 72 in. units in a similar period.

Most of the pipe manufactured in the plant is going underground within three or four days after they are cast. This is made possible because during this period of time the units already exceed compressive strength requirements as specified by ASTM.



WORKMEN REMOVE OLD COLUMN (1) that supported San Francisco-Oakland Bay Bridge ramp to make room for new freeway viaduct. Load is taken by prestressed carrying beams (2) either side of old column stub supported by two new columns. Scaffolding in background is used in prestressing beams of another new bent prior to removing a second old column.

Bridge Ramp Altered for Viaduct

When the San Francisco ramp for the San Francisco-Oakland Bay Bridge was designed some 20 years ago, the engineers that planned it did not dream that it would one day be necessary to remove two of its columns. But this is just what is being done to make room for a freeway viaduct that will pass underneath the ramp. New supports for the column loads are provided by bents made of two new columns plus a pair of prestressed carrying beams.

The new viaduct is an eastbound connecting ramp from the Bayshore Freeway to the Embarcadero viaduct. Its 28-ft pavement width will carry two lanes of eastbound traffic under the existing bridge ramp to connect with a double deck viaduct. The viaduct in turn carries the traffic to the San Francisco waterfront area.

In making room for the new construction, two existing columns had to be removed. But before they were, the column loads were taken by the new bents. Each column load is supported by a pair of 47-ft long prestressed carrying beams 1½ ft thick by 7½ ft deep. The beams are prestressed by 1⅛ in. dia rods with 18 rods needed for each. Total prestress effort is 1,460 kips per beam. After the beams were cast and stressed, the old column was cut away.

The work was designed by the Bridge Department of the California Division of Highways under the direction of F. W. Panhorst, assistant state highway engineer. Contractor for this phase of the Embarcadero Freeway work is a joint venture of MacDonald, Young & Nelson and Morrison-Knudsen Co., Inc.

Overloaded Patent Office Looks for Staff Engineers

The U. S. Patent Office—flooded by invention applications—is doubling its efforts to find engineers and scientists to serve as patent examiners.

A backlog of applications is piling up in almost every technical field, and the average processing time for patents has been stretched to 3½ years. Over 100 new patent examiners already have been added to the staff since June of this year. But about 250 more are needed by the end of 1956.

Engineers and scientists holding a college degree in engineering or applied science are eligible for appointment—without examination—upon application to the Commissioner of Patents in Washington, D. C.

Salaries for patent examiners start at $4,345 a year and can reach $7,570 at the end of 5½ years.

The stainless steel for the Socony Mobil Building is being supplied by Republic and other leading producers. Harrison and Abramovitz, architects; John B. Peterkin, associate. Turner Construction Company, general contractor. Edwards and Hjorth, structural engineers. Jaros Baum and Bolles, mechanical engineers. Edward A. Ashley, electrical engineer.

An 11-acre Stainless Steel curtain is going up on 42nd street

And because it is stainless steel it will stay vivid and attractive for life. It's the new Socony Mobil Building being erected at 150 E. 42nd Street, New York City.

When completed, the building's exterior surface will contain 11 acres of stainless steel in the form of curtain walls, window frame and sash, piers, mullions and louvers.

Why was stainless steel selected for the world's largest metal-clad office building? Because it offers so many important architectural and construction advantages. For example:

1. Stainless steel curtain-wall construction lightens the building by providing strength without added bulk. Wall weight of the Socony Mobil Building has been reduced about 70% as compared to conventional construction. Only 4 inches of masonry are needed behind the stainless walls to meet New York City building codes. This means an extra 3% of rentable space.

2. Stainless steel curtain walls speed erection. Ease of installation and maximum speed are built in to each panel during fabrication. And as each panel is quickly and easily bolted into place it overlaps the one below. This provides a tight fit that keeps weather out, yet allows the building to breathe. The installation work is done from within the building, reducing the need for expensive surface scaffolding.

3. Stainless steel reduces maintenance costs. It is highly resistant to rust and corrosion and offers immunity to weather effects. Stainless steel never needs painting. These factors are "bonus benefits" of stainless steel that add up to minimum maintenance, particularly in hard-to-service areas like flashing, trim, parapet caps, domes, gravel stops and drainage items.

4. Stainless steel retains its beauty. Because of its resistance to rust and corrosion, stainless steel will not discolor with age. The neighboring Chrysler Building, shown right in main illustration, is proof of that. A recent inspection of the building's stainless steel spire revealed only an accumulation of dirt after a 25-year exposure to the elements. No deterioration. No corrosion. No discoloring. The beauty of stainless steel is enduring.

The future for stainless steel in architectural applications is as bright as the metal itself. And remember, it harmonizes beautifully with other materials of construction. Before you progress too far with your future building plans, investigate ENDURO Stainless Steel by Republic. The coupon will bring you complete information.

REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products

THIS WINDOW CAN CUT CLEANING COSTS BY 50%.

It's Truscon's stainless steel reversible window, one of 3,200 being installed in the Socony Mobil Building. Windows can be cleaned entirely from within the building. They rotate a full 360°. Tests, conducted under hurricane conditions, have proved the window watertight and 80 times more resistant to air leakage than allowable industry standards. Engineers estimate this tight seal will save $3.54 per opening on fuel and air-conditioning costs in the Socony Mobil Building. Truscon engineers will help you adapt this window to your individual requirements. Send coupon for fact and specification file.

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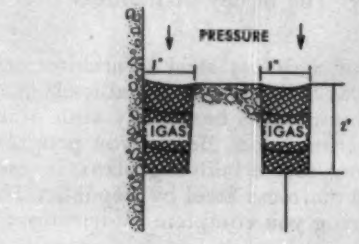
the non-meltable mastic waterstop

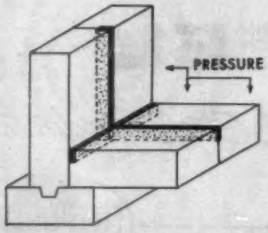
installed after concrete hardens—simply, easily

Igas Joint Sealer is a tough, resilient, non-meltable mastic used for sealing joints in concrete, metal and other construction materials. Igas is easily installed in vertical, horizontal and overhead joints. It is installed after concrete has hardened and forms a continuous watertight seal, even at the junctions of joints. Igas is fully effective at temperatures from −10° F. to 180° F. (special grades for other temperature ranges). Igas does not dry out or become brittle with age.

2 basic designs solve most joint problems

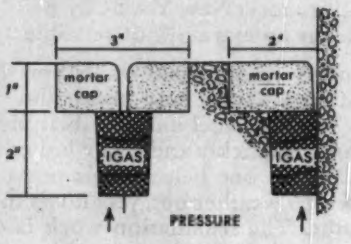
TYPE A—Face Pressure

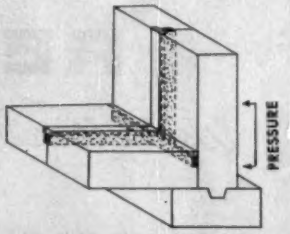




Water Reservoirs
Swimming Pools
Tanks
Parking Decks

TYPE B—Back Pressure





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Joint sizes and types shown here are suitable for most jobs. Type A joints will sustain a 20 foot head of water with movement in the joint of 1/8". Type B joints will sustain a 20 foot head of water with movement in the joint of 1/16". Other joint details are available for special problems involving greater movement and greater water pressure.

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MULTIPURPOSE MACHINE devised by contractor consists of a skip for receiving aggregate and cement, a mixing drum and a hoist and hopper for delivering concrete to roof forms.

Details Pay Off on Roof Job

Here's one contractor who even studied ways to open cement bags and handle screeds in his search to cut construction costs.

Attention to details is paying off for Lynn M. Ross, a contractor in Lehighton, Pa.

A typical example is his installation of the roof deck for the new Mahoning School at Lehighton. The vermiculite concrete roof covers an area of 17,000 sq ft with an average height above grade of 14 ft. It was cast on paper-backed wire mesh at a cost of $0.40 per sq ft which included the mesh..

The school building itself is a one-story, steel-framed structure, with open-web roof joists spaced 2 ft c-c. Exterior walls are brick veneer with concrete block backup.

Careful planning led to these cost-cutting steps in roof construction:

• **Best way to open bags**—Time and motion studies were made to determine the best method of opening cement and aggregate bags, and this is the procedure that Ross has standardized on:

Aggregate bags—Grasp the bag firmly with one hand. With the other hand rip off the top of the bag just below the sewn closure. This assures a smooth edge. The bag is now upended with a twisting motion to carry all the material out. If the bags are cut, rough edges waste material by keeping the aggregate from dropping out, or the bag must be shaken.

Cement bags—Open these with a knife slit on each side—one slit almost the entire length of the bag, the other slit, shorter. As the bag is picked up, air rushes in and forces the cement out freely. The short slit eliminates any suction that might trap cement in the bag.

• **Combined mixing and elevating unit**—For fast mixing and placing, Ross used a combination mixing and elevating unit that ran under its own power. With this equipment, it was possible to run a continuous mix and turn out 2 cu yd of concrete every 5 minutes.

The full crew consisted of two men on the ground to charge the mixer, one mixer operator, two men on the roof to buggy concrete, two to finish, and one supervisor.

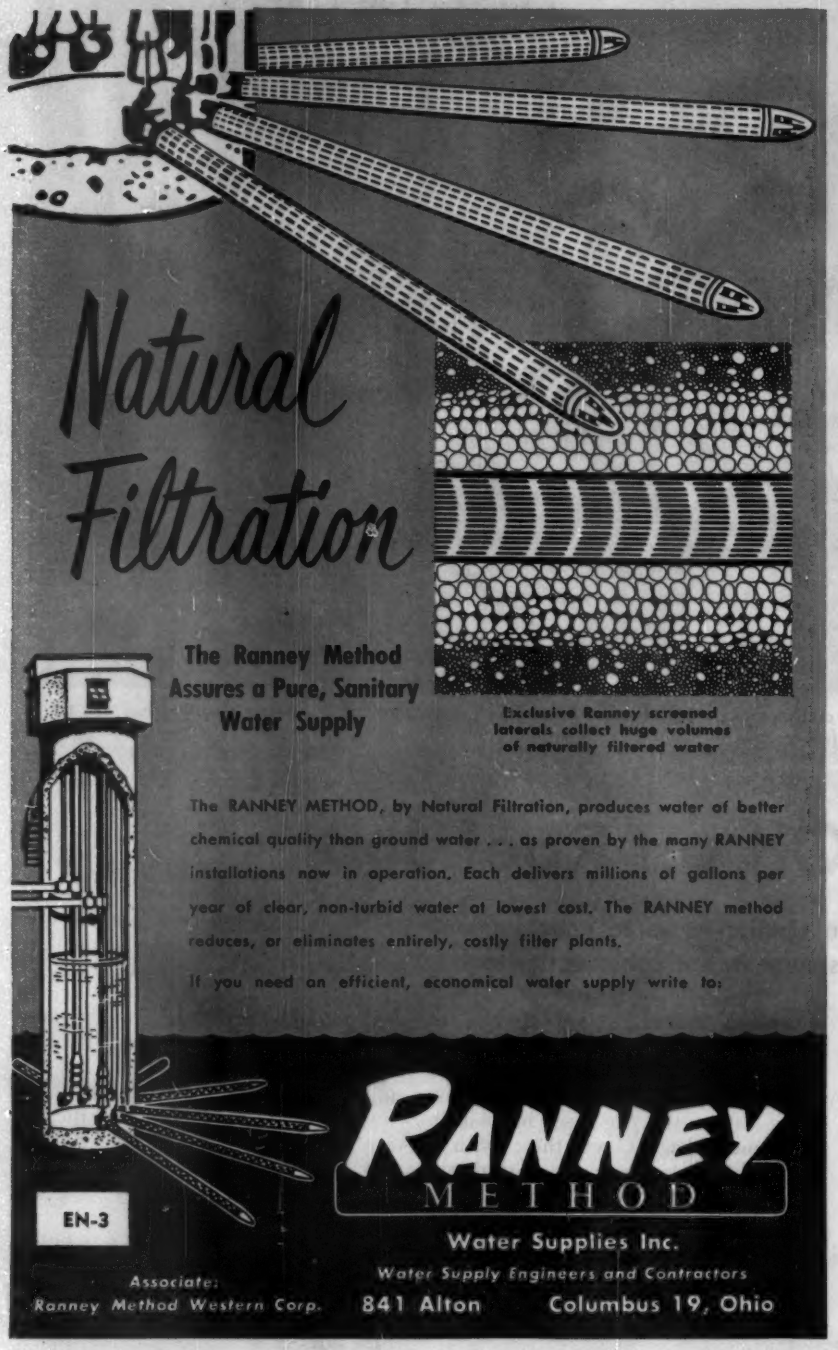
A typical batch at the Mahoning School was 15 bags of vermiculite aggregate and 15 bags of portland cement. First, 7 bags of vermiculite were dumped into the mixer's skip; next, all 15 bags of cement; then the remaining 8 bags of vermiculite.

• **Piped in water**—Mixing water, piped in, was controlled automatically by an electric meter that operated off the mixing machine generator. This meter was set at the beginning of the job for the amount of water needed. It was not changed unless the men on the roof had difficulty working the mix.

Half the required water was put in the drum immediately after the preceding batch had been emptied. This served the added purpose of cleaning the sides and blades of the mixer. The other half of the water was added with the vermiculite and cement. Thus, all materials came together almost simultaneously.

• **A 15-minute limit**—The concrete was mixed not longer than 4 minutes. Ross limited his men to a maximum of 15 minutes from the time the dry material went into the skip until the concrete was mixed, elevated, put down, and finished. The 15-min. period included time for minor breakdowns and delays.

After mixing, the concrete was elevated in a 1-cu yd bucket to a 1½-cu yd hopper on the roof. From there it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was carried by buggies over plywood runways to be placed. Ross restricted the distance of haul to 40 ft from the roof hopper.

The forms were 3 x 4's laid across open-web steel joists. Concrete was placed in bays 12 x 12 ft.

Screeding was done by one man with an aluminum screed. Ross believes that the angle of finishing with the screed is important. Every stiffness of concrete should be finished at a different angle. The softer the concrete, the flatter the screed must be to make a smooth surface. For vermiculite concrete he uses a 10 deg angle between the screed handle and the horizontal.

For finishing rough spots and screed pockets, Ross uses a special long handled trowel at the same 10 deg angle. It is a stainless steel trowel that has a U-clamp where the handle is fastened to the blade. To keep from digging in, it is designed so that when the operator pushes on the handle, the front of the trowel raises; when he pulls, the rear of the trowel raises.

The entire deck was placed by the eight man crew in 21½ hours.

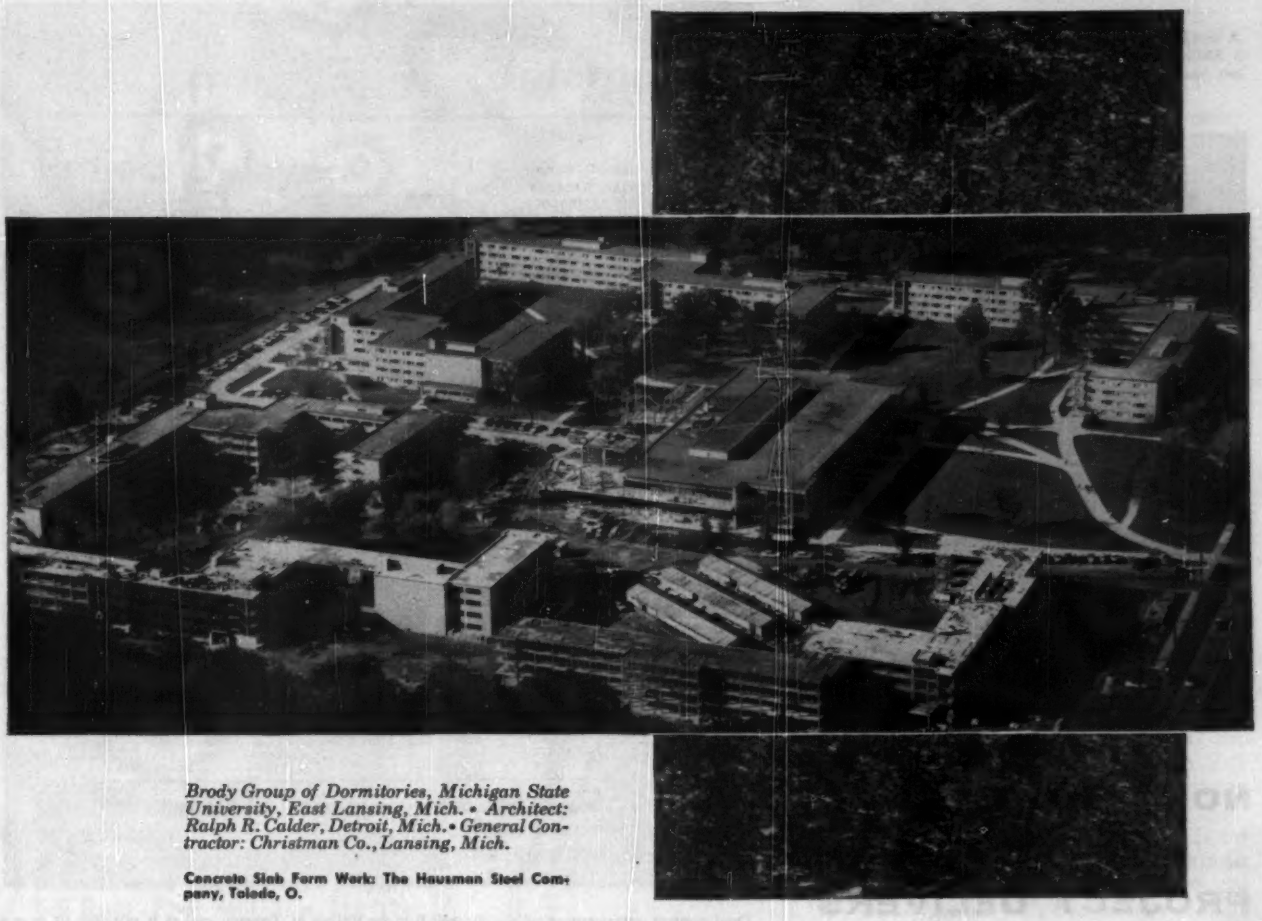
Earthmoving Operations Begin On Fort Gaines Dam Project

Large-scale earthmoving operations are underway on the Army Engineers $86 million Fort Gaines, Ga., lock and dam, another key project in development of the water and power resources of the Chattahoochee River system.

Moss Construction Co., of Columbus, Ga., has started work under a $1-million contract to build the first of three earthfill sections of the dam, on the Alabama side of the river, which forms the Georgia-Alabama boundary at this point.

The Moss contract comprises a 2,250,000 cu yd compacted earthfill dam, 6,130 ft long and with a maximum height of 66 ft. A second contract will be up for bids shortly on the Georgia dike, which will be 5,810 ft long. A third contract will cover construction of the center portion—a powerhouse, lock and spillway that will complete the 13,500-ft long dam.

The dam will provide 436,000 kwh of electricity annually, and will back up a lake more than 85 mi long, supplying flood control and water supplies to nearby communities, as well as power. Fort Gaines Lock and Dam will be the third of four Chattahoochee structures under way—the other two being Buford Dam above Atlanta (ENR May 5, 1955, p. 34), Jim Woodruff Dam in Florida. A fourth project will be Columbia Lock and Dam near Columbia, Ga.



Brody Group of Dormitories, Michigan State University, East Lansing, Mich. • Architect: Ralph R. Calder, Detroit, Mich. • General Contractor: Christman Co., Lansing, Mich.

Concrete Slab Form Work: The Hausman Steel Company, Toledo, O.

1,000,000 square feet of smooth concrete ceilings—with

MASONITE *Concrete Form* PRESDWOOD

In 1953, three dormitories totaling 375,000 square feet of concrete slab ceilings! Plus a dining hall with 150,000 sq. ft.!

In 1954, a library (not shown) the size of a football field!

In 1955, three more dormitories and 375,000 more sq. ft.! Plus 50,000 sq. ft. in an addition to the dining hall!

From first to last, all finished form work—well over a million square feet—was poured against Masonite Concrete Form Presdwood!

What is there about this strong, dense, grainless forming panel that made it the consistent choice of the contractor for each phase of this job? In the contractor's own words: "Not only do we have a very excellent finish, but the speed of erection and economy in material cost absolutely dictated the use of Masonite Concrete Form Presdwood."

You can enjoy the same kind of results with finished-surface concrete by forming with Masonite Concrete Form Presdwood®. These sturdy panels are easy to work, can be used again and again. Send the coupon for a handy sample and complete information.

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1. Screen side to concrete—for unpainted surfaces. Tiny projections left in concrete cut hand-rubbing costs up to 50%.
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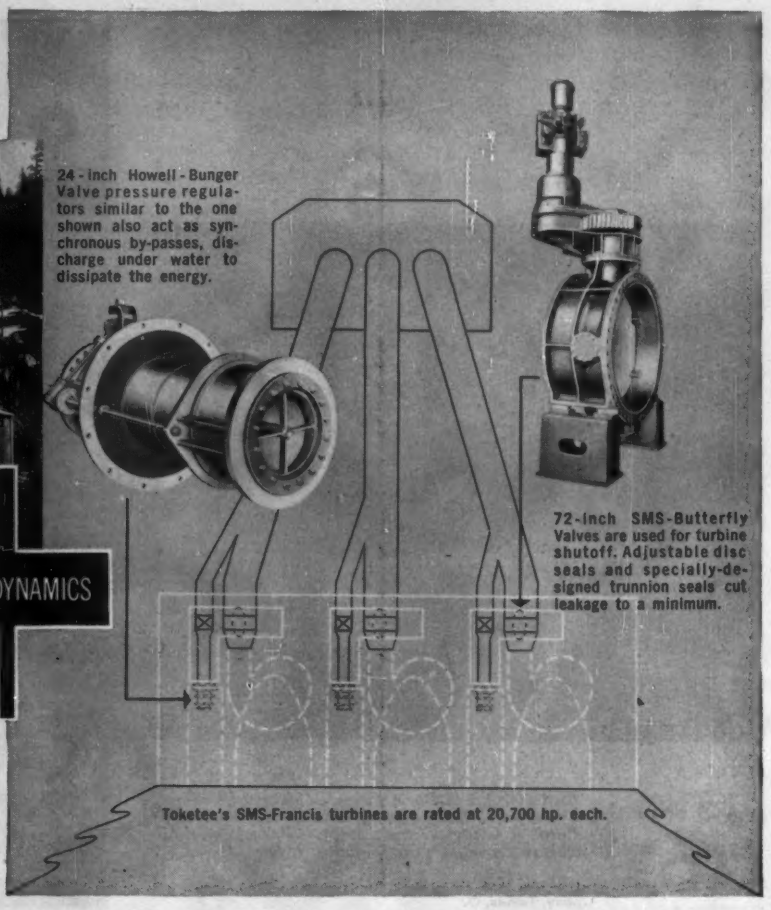
County.....*State*.....

A single main penstock with a surge chamber feeds 3 SMS-Francis turbines operating under a 433-foot net head at Toketee.


24-inch Howell-Bunger Valve pressure regulators similar to the one shown also act as synchronous by-passes, discharge under water to dissipate the energy.
72-inch SMS-Butterfly Valves are used for turbine shutoff. Adjustable disc seals and specially-designed trunnion seals cut leakage to a minimum.
Toketee's SMS-Francis turbines are rated at 20,700 hp. each.

HYDRODYNAMICS

HOW COPCO'S NORTH UMPQUA PROJECT DELIVERS

Dual control arrangement of the Howell-Bunger Valves at Toketee makes it possible to pass a constant predetermined quantity of water regardless of turbine load. This helps control the down-river water level.

LOW-COST POWER

Eight years ago, the California Oregon Power Company was faced with a greatly accelerated load demand. To meet this challenge economically, a planned expansion program was started on the rugged, remote North Umpqua River. Today, eight new plants have added a total addition of 145,000 kw at an exceptionally low cost.

This North Umpqua project graphically demonstrates economy of construction and operation. One central station of conventional design — Toketee — remotely controls seven unattended single-unit, outdoor-type stations within a 12-mile radius.

Five SMS turbines, with a total rated output of approximately 124,000 hp, are used in this project. SMS accessories in five of these stations include 7 Howell-Bunger Valves — 3 of which are shown in the diagram interconnected with the Toketee turbines — 6 Butterfly Valves, 2 Elbow-type Pressure Regulators and 2 Motor-operated Trash Rakes. All are now in operation and exceeding guaranteed performance. To get full information on hydraulic turbines and accessories, contact us at York, Pennsylvania.

HYDRAULIC TURBINES — GATES & HOISTS
TRASH RAKES
PUMPS — ACCESSORIES

HYDRODYNAMICS

ROTOVALVES — FREE-DISCHARGE VALVES
BALL VALVES
BUTTERFLY VALVES — CONTROLLABLE-PITCH SHIP PROPELLERS

S. MORGAN SMITH

AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED • TORONTO

Project Delayed

Conservationists fight Canadian hydro scheme

Contract awards for part of British Columbia Power Commission's $19-million Campbell River hydro development on Vancouver Island have been held up by filing of a writ seeking injunction in B. C.'s Supreme Court.

The writ seeks to prevent flooding of Buttle Lake, focal point for five years in a water rights controversy between the Power Commission, which is seeking ways to meet hydro demands, and conservationists who are fighting to save the "pristine beauty of Strathcona Park."

The injunction was filed while BCPC was opening bids for clearing of lake areas, lowest of which was $14.3 million, about $5 million more than expected.

Work continues, however, on the $9-million first stage of the dam under a $4,921,875 contract awarded in August to Dawson, Wade & Co. to construct a rock-fill dam on Campbell River (ENR Sept. 8, p. 31). The second stage will increase the height of the dam to back water into Buttle Lake, making one 30-mi-long lake of Upper Campbell and Buttle Lakes. A 52,500 kw power plant will be installed.

The writ claims that authorization of the project was illegal under terms of the Strathcona Park Act. However, BCPC has maintained that the Campbell River system has 50% of all the hydro potential on Vancouver Island, which is faced with a critical shortage of electricity.

The B. C. court is preparing to hear the application for injunction, but government sources indicate writ proceedings may be delayed for months by legal formalities.

Cuban Public Works

$21 million earmarked for island developments

Cuba's President Batista has signed decrees making $20,917,000 available for public works throughout the country under the four-year, $350-million Economic and Social Development Program. Some of the projects for which credit is now available are under construction already.

Among the big projects in Havana covered by the decrees are $1 million for a road which will run from the Plaza del Este, on the Via Blanca, to the Central Highway at Cotorro and its extension all the way to the Havana Bay tunnel.

Others in Havana are: $1 million for the Sports City; $500,000 for extension of a seawall; $500,000 for expansion of the airport at Camp Columbia; and $1 million for another road.

A total of $3.5 million was designated for the Circuito Norte road network from Varadero and Cardenaz through Las Villas and Camaguey provinces to the city of Moron.

For the Isle of Pines, $500,000 was set aside for a road that will run between Nueva Gerona and Santa Barbara and extension to Siguanes, and Santa Fe.

For Oriente, Cuba's largest and most densely populated province, the President designated $900,000 for a road between Compechuela and Niquero; $200,000 for a Guantanamo-Caimanera road; $500,000 for a Guantanamo-Baracoa road (Via Azul); $400,000 for the Santiago de Cuba naval base and Malecon, and other smaller projects.

Plant Design Provides Natural Air Conditioning

The design of a calcium carbide plant near Calcutta, India, is such that the structure acts as a huge chimney. The ventilating system incorporated provides especially large windows oriented to create a cross-draft between the windward and leeward sides of the building. This together with a grating-type floor that creates a vertical draft produces an air conditioning effect.

It has been contended that moisture-sensitive calcium carbide could not be produced in the tropics without mechanical air conditioning. But the ventilation system used here is said to be just as efficient and, of course, less expensive.

But ventilation was not the only problem in designing the plant. Erected on soil where the ground water level is only 6 in. below the surface, it was necessary to drive 162 cast-in-place concrete piles to an average depth of 55 ft.

Water was again the problem in designing an underground checkroom for the plant's furnaces. The room which was located 14 ft below ground level was constructed of reinforced concrete and lined with steel for watertightness.

Huge Power Plant

Million kw station now under way in Britain

Work has begun on Britain's largest power station, a facility for the Central Electric Authority. The generating plant on the Trent at High Marnham in Nottinghamshire will have five 200,000 kw turbo-generator sets and associated boiler plants.

Each one of the generating sets, believed to be the largest in Europe, will be more powerful than most of CEA's complete power stations. There are only 26 stations out of a total of 275 in which all the plant in the station has a capacity greater than one of these turbo-generators.

The five boilers which will serve the sets will also be of gigantic size. Operating at conditions of very high pressure and heat, 2,450 psi and 1,060 F., they will produce an estimated total of 3,125 tons of steam an hour.

The High Marnham station is expected to achieve an average annual thermal efficiency of 33% which can be compared with the present average of all steam stations of 24.08%.

Economy in plant and building has also been achieved. High Marnham generators, although twice as powerful as 100,000 sets, are only 2 ft. 6 in. longer.

The first set at High Marnham is expected to begin operating in 1960. When fully completed the station, which has been designed by the authority's headquarters engineering staff, will consume about 2,500,000 tons of coal a year.

Canadian Consultants Get $15-Million Indian Contract

Canadian engineers and contractors have been given the responsibility of designing and building a new water power plant in Pakistan. H. G. Acres and Company of Niagara Falls are serving as consulting engineers to the Government of Pakistan for this power scheme which is located at Warsak, 18 mi. from Peshawar in the Northwest Frontier region. Contract for the construction of the plant has been awarded to the Angus Robertson Company Ltd., general contractors of Montreal.

The Government of Pakistan has already appropriated $15 million for the scheme. Total cost may reach $40 million.

Harrison & Abramovitz, architects—John B. Peterkin, associate
John W. Galbreath Corporation, owner
Turner Construction Company, builder

Stainless Steel skin

for largest metal-clad building in the world!

The next time you hit New York City, take special note of the bright new Socony Mobil Building at 42nd and Lexington, because this building is going to make history.

It's the 6th largest office structure in the world; and is completely clad with low maintenance Type 302 Stainless Steel. Directly across the street is the Chrysler Building, the first building to make major use of Stainless Steel for an exterior. Although it was erected in 1928, the Stainless on the Chrysler Building is still free from corrosion.

Stainless Steel sections can be thin, because it is so very strong, and no allowance for corrosion is necessary. Stainless Steel has such a high melting point that it will meet fire test requirements from inside *and* outside the building.

The Stainless Steel skin requires no maintenance. But if it is desirable to clean it simply for appearance's sake, it's an easy job. Best of all, Stainless Steel exteriors give fine service for the entire projected life of the building.

As the producer of USS Stainless Steel, we have worked closely with the fabricators of Stainless Steel panels for curtain-wall construction. We'll be glad to send you further information and put you in touch with these fabricators. Write to United States Steel, Room 5055, 525 William Penn Place, Pittsburgh 30, Pa.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • NATIONAL TUBE DIVISION, PITTSBURGH
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S-2478

See The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

UNITED STATES STEEL

Note the stringers of Stoody 21 which act as "buffers" between abrasive earth and bucket sides. Inside surfaces of bucket receive similar protection.

All Buckets Take a Beating... Here's the Medicine!

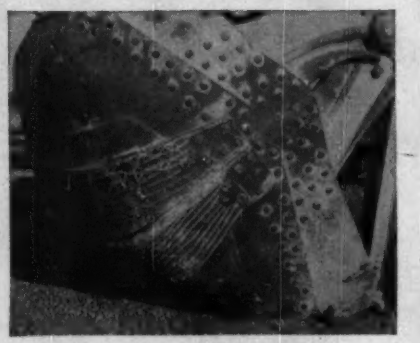
We're often asked about bucket maintenance, what hard-facing material to use and how to use it for maximum wear protection. Actually, your own equipment gives you part of the answer. Each bucket wears differently, depending upon how it is used and the kind of material handled. By watching for development of wear patterns, then hard-facing these areas at definite intervals, you'll get extended service with greatest economy. *Remember, a frequent touch-up is better than a major repair*...more economical in hard-metal and less costly in down time.

If buckets are severely worn, first build up with Stoody Manganese. For hard-facing, the alloy most commonly used is Stoody 21, preferred because of good wear resistance, fast deposition rate and low price. Occasionally, under conditions of excessive abrasion, Coated Tube Stoodite gives longer life on shovel teeth and reduces maintenance costs.

Full particulars on alloy recommendations and hard-facing procedures are in the Stoody HARD-FACING GUIDEBOOK. Ask your dealer for a copy (check the "yellow pages" of your phone book) or write direct.

Bucket teeth (top illustration) and adapters (above) are amply coated with Stoody 21. Hard-faced teeth on this job averaged two full shifts of extra service before needing additional hard-facing treatment.

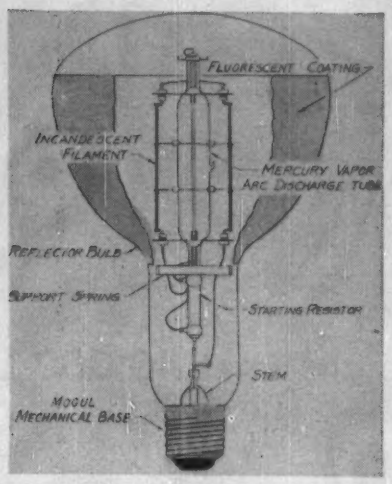
These Stoody 21 beads across the bucket resist severe abrasion as it is dragged across rubble, returning for a new bite.



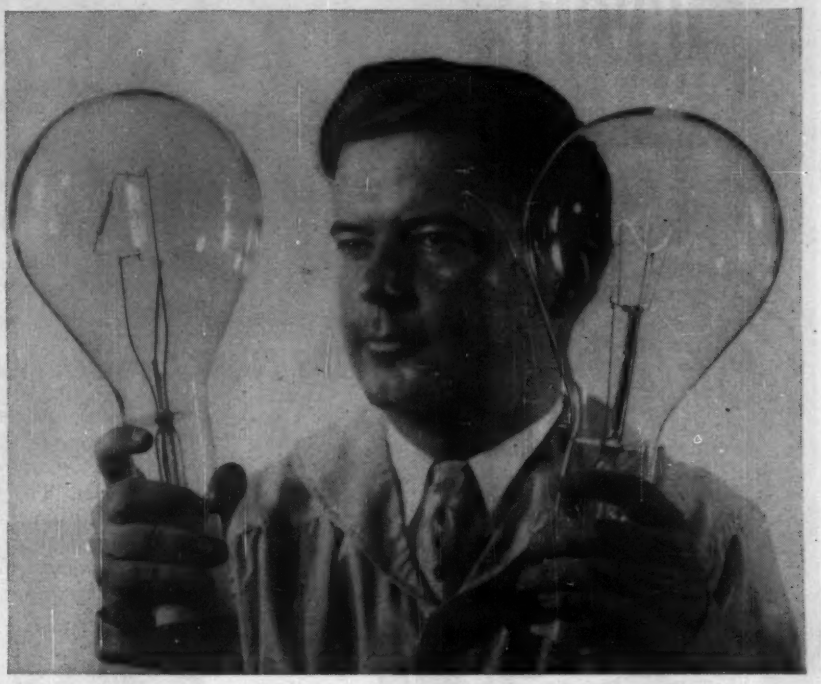
Lips on this clam shell are kept in good shape for a tight seal with Stoody 21.

Scoop lifts often lead a tough life. Here, lips, sides and bottoms are kept in good condition with Stoody 21. Occasional touch-ups are made as wear occurs.

STOODY COMPANY 11940 East Slauson Avenue, Whittier, California



DURO-TEST CORP.'S 12,000 hr Fluomeric lamp (above) has three light sources in single envelope, needs no ballast.



GENERAL ELECTRIC'S axial filament lamp (left in picture, right) has 15% greater output than old style incandescents.

Brighter lights . . .

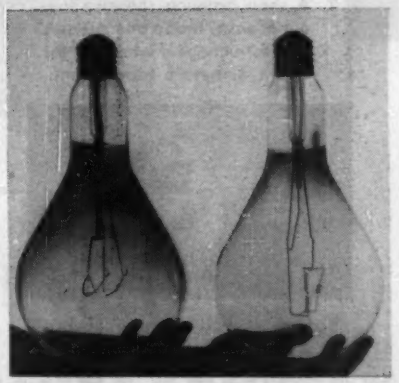
New Developments Boost Lamp Output

From GE's Nela Park Labs and from Duro-Test Corp. in North Bergen, N. J. have come two separate, significant improvements in commercial electric lighting. Both innovations boost the efficiency of high wattage mogul-socketed lamps without requiring installation alterations or the addition of accessory equipment.

General Electric's contribution is a mechanical redesign of the filament and filament geometry in lamps of 750 and 1000 w, resulting in 15% greater light output without reducing effective lifetime. The company claims its new lamps produce light at an average of 21.6 lumens per watt, compared to 18.9 lumens per watt for present 750 watt bulbs. Changing to a coiled-coil filament from the standard single-coil filament, and stringing the new filament parallel to the axis of the bulb did the trick, according to the lamp's designers. The new filament position also reduces light loss from bulb blackening by concentrating the deposits in smaller areas. Lifetime of the lamps is conservatively rated at 1000 hr. At present, only 750 and 1000 w bulbs of the new design are in production.

The new Duro-Test lamp, now in final pilot production, is a radical departure from standard light sources. Actually, it is three light sources wrapped in a single glass envelope: a mercury-vapor gaseous discharge tube, a fluorescent coating, and an incandescent filament. The three light sources complement each other, producing balanced light approaching daylight in quality. Called Fluomeric lamps, the new bulbs yield over 25 lumens per watt, according to Duro-Test. Such efficiency, while below straight mercury vapor or fluorescent sources, is above that of standard incandescent lamps. But more important than increased efficiency is the extended lifetime of the Fluomeric lamps —claimed to be more than 12,000 hours.

The designer of the Fluomeric lamp, Michael Macksoud, is known for his ability to make filaments do double duty. He developed, among other things, the AC-DC radio circuit and a pocket-sized reflector sun lamp. Like his other inventions, the Fluomeric lamp needs no external ballasting, as the filaments in the bulb provide the ballast for the mercury vapor gas discharge tube and at the same time give off light in the yellow-red spectral region to add to and soften the harsh blue light of mercury vapor. The fluorescent coating on the inside of the bulb provides additional light. By using various phosphors, light balance can range from almost constant radiation level throughout the spectrum to a variety of hues.



OLD AND NEW GE lamps, after equal burning time, show difference in blackening effect on light output.

The lamps will be available in a full range of standard and special shapes in wattages ranging from 250 to 750. All are equipped with standard types of socketing for regular incandescent light fixtures. The cost of the Duro-Test lamps will be slightly higher than color-corrected mercury vapor lamps of equal output, but Duro-Test claims the economy realized in ballast-free installation and longer lifetime offsets the higher cost.

(*New Products continued on page 65*)

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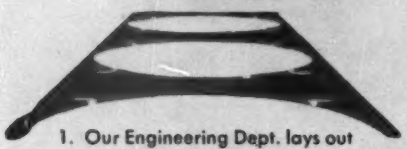
BECAUSE THEY FIT PERFECTLY!



1. Our Engineering Dept. lays out complete flooring plan from your floor plan, sketch or overall dimensions.
2. A shop drawing showing layout of sizes, shape and cut-outs for obstructions is submitted for approval before fabrication.

3. Each panel is carefully checked by our inspectors before shipment and is clearly marked for quick installation.
4. We furnish erection drawings showing location of marked panels.

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Big New Grader Weighs in at 40,000 Lb

A Cummins 190 hp diesel feeds through a GM-Allison torque converter to power the new 40,000 lb Galion T-700 motor grader. The big rig has a 14-ft moldboard 30 in. high that is hydraulically controlled, a power shift transmission and other features designed to increase driver efficiency and reduce fatigue.

The T-700, claims the manufacturer, was designed from the ground up to be one of the toughest, heaviest and most powerful motor graders ever made. The power controls on the machine are intended to free the driver as much as possible from the mechanical operation of the machine so that he may devote full attention to carrying out the actual grading operation.

The torque converter transmits power in an infinite number of ratios, multiplying engine torque by 340%, if necessary. A tail-shaft governor on the converter controls engine speed automatically to meet load conditions at all predetermined travel speeds. The power shift transmission, controlled by fingertip levers, has three speeds in both forward and reverse. The foot clutch has been eliminated—a foot decellerator reduces engine speed without affecting working speed setting on the hand throttle.

Tires are twelve ply 16.00 x 24 low pressure. The grader has four-wheel hydraulic service brakes and a transmission brake for parking. GALION IRON WORKS & MFG. CO., GALION, OHIO.

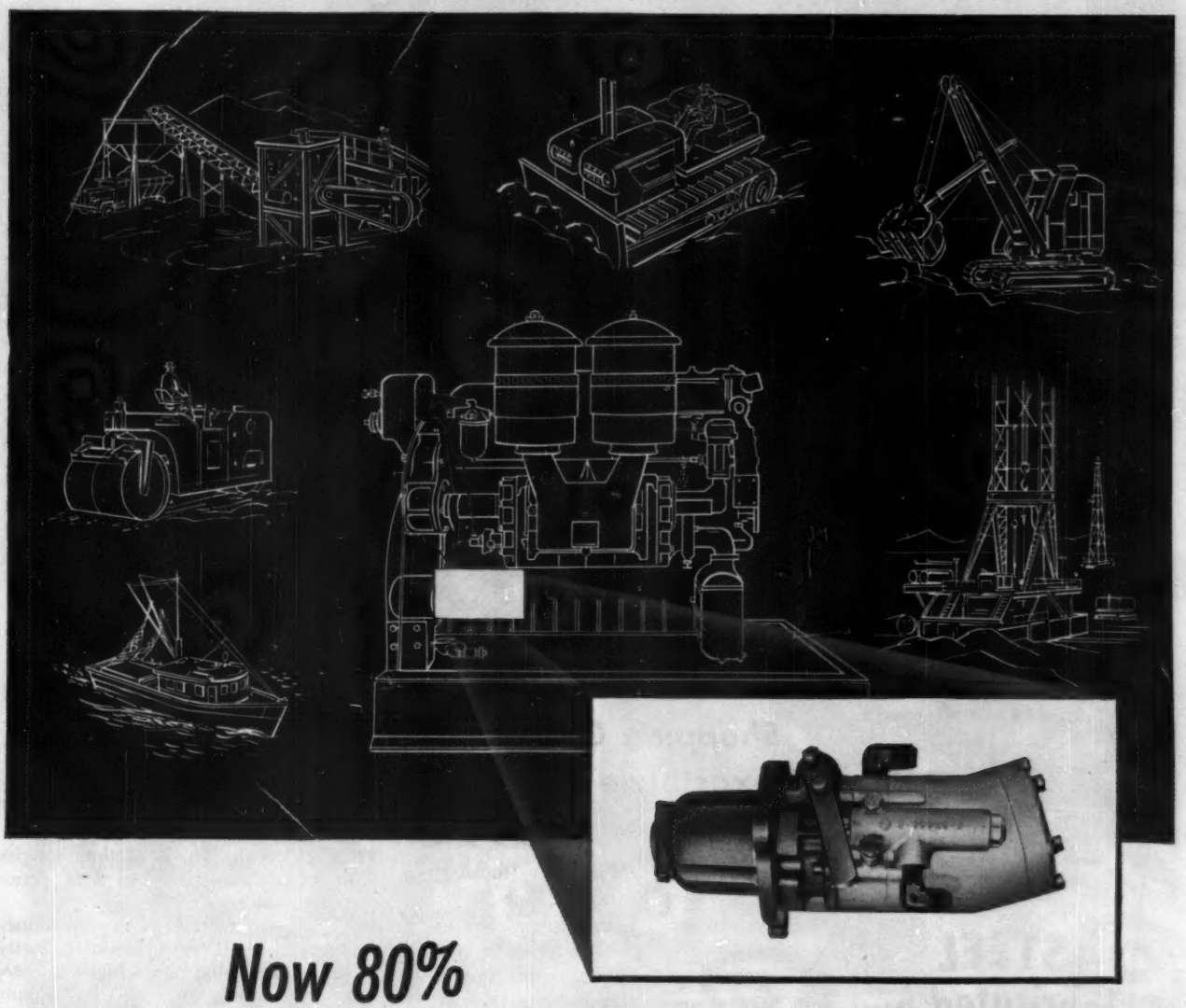
B-80 Macks Make Debut in 11 Models

A new series of four and six-wheel Mack Trucks, carrying gvw ratings of 46,000 to 65,000 lb, are the most rugged for their size that Mack has ever built, according to company spokesmen.

Designed for on and off the road duty, the B-80 line includes 11 models intended for use in heavy construction, logging, quarrying, oil field and other rough duty assignments. All versions of the trucks have large-section, double-channeled alloy steel frames. On long wheelbases, heavy fishplating is available where required.

Power options offer a choice of gasoline or diesel, ranging in horsepower from 170 to 300, including the new Thermodyne turbocharged diesel

(*Continued on page 66*)



Now 80% Faster Detroit Diesel Cranking with the new Low-Cost GM Hydrostarter

TESTS PROVE that a Hydrostarter gets a General Motors Detroit Diesel up to starting speeds 80% faster than regular starting systems.

That means fast, sure starts anywhere, anytime—means your GM Detroit Diesel-powered equipment starts *right now* as soon as you pull the starting lever, even at low temperatures or after your equipment has been idle for long periods.

With a Hydrostarter on your GM Detroit Diesel engine, you enjoy thousands of starts without parts replacement, maintenance or downtime expense because all components are self-lubricated and sealed against dirt.

You can order a Hydrostarter for your present engines or on your next GM Detroit Diesel. Your distributor has them available for you now—call him today or write direct for more information.

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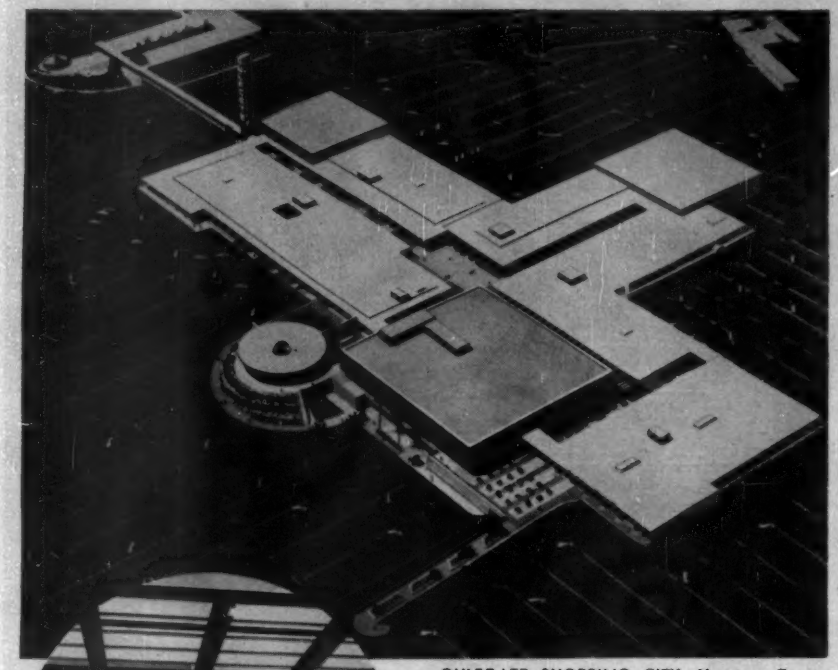
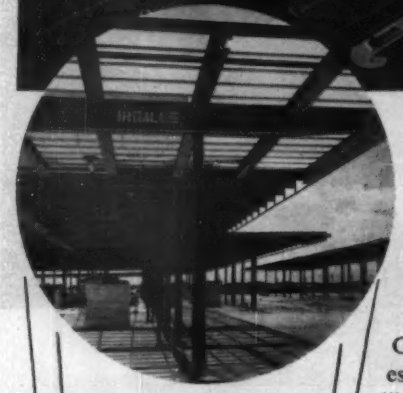
Engine Division of General Motors

Single Engines . . . 30 to 300 H.P.

Multiple Units . . . Up to 893 H.P.

America's Largest Builder of Diesel Engines





GULFGATE SHOPPING CITY, Houston, Texas.
Architect: John Graham and Company, Seattle.
Contractor: Farnsworth and Chambers.

Shopping Center—Texas Style . . . **BIG**

Gulfgate Shopping City near Houston, established by Allied Stores Corp., is like most things in Texas . . . big. The $20,000,000 project will house 90 to 100 stores, including Joske's department store with 207,000 square feet of space. Overall, there are 840,000 square feet, facilities to park 20,000 automobiles a day. Steel for this gigantic, modern development was furnished by Ingalls.

STEEL fabricated by INGALLS

THE INGALLS
IRON WORKS COMPANY
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Sales Offices: New York, Chicago, Pittsburgh, Houston, Atlanta, New Orleans.
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CORE BORINGS
for Foundations, Dams, Bridges and all Heavy Structures
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Grafton, W. Va.

of 205 hp rating (pictured above). Transmissions range from five speed to the new Mack 20 speed Quadruple, as well as five-speed transmissions coupled with three-speed auxiliaries.

Rear axles on the four wheelers are of the dual reduction gear type with heavy duty radius and torque rods. The six wheel versions have two sizes of balanced bogies, with inter-axle differential to deliver torque in proportion to traction.

The cabs of the B-80 line were designed to provide improved vision, ventilation, comfort and accessibility. The square cut fenders have extra strength for use as working platforms.

Special optional equipment includes power steering, air assist clutch and the Mack exhaust brake. MACK TRUCKS INC., 350 5TH AVE., NEW YORK, N. Y.

X-Ray Spot Checker Has High Power, Low Weight

Capable of checking weldments and detecting flaws in steel up to 1½ in. thick, a new portable X-ray unit is useful as an alternative to sectioning methods of inspection. The entire Baltospot unit, including X-ray head and control panel, fits into a space 32x16x13½ in. The head alone weighs 46 lb, and turns out 140 KVP penetration power.

The manufacturer is also introducing two other, more powerful, units with correspondingly high power-weight ratios. One, the Baltograph 180, an end-grounded unit with X-ray source at one end of the head, is intended for reaching difficult locations. The unit has a 180 KVP rating and has a head weight of 119 lb. The third unit, the Baltograph 260, has enough penetrating power to check most thick, high density weldments in high pressure piping and similar heavy duty installations. The self contained head weighs 230 lb and has a rating of 260 KVP. BALTEAU ELECTRIC CORP., STAMFORD, CONN.

With a Homelite on the Job

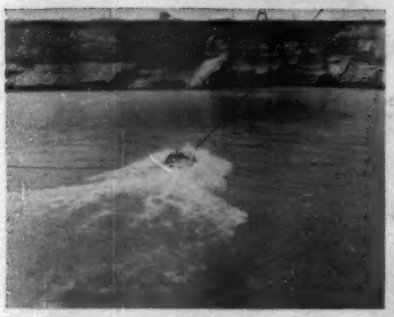
Work speeds up . . . costs go down . . . always! Because a lightweight, carryable Homelite gives you instant, efficient power any place you need it . . . power for operating every type of electric tool or bright, flickerless floodlighting. Here, for example, a Homelite gasoline engine driven Dual Purpose generator, operates a standard universal power saw and a one man high cycle concrete vibrator *both at the same time.* Write for complete bulletin showing many ways to cut time and costs with Homelite Carryable Generators.

HOMELITE

A DIVISION OF TEXTRON AMERICAN INC.
1112 RIVERDALE AVE. PORT CHESTER, N. Y.

Sauerman Scraper Eliminates a Shift

• Digs 250 Tons Per Hr.



• 400 Ft. From Hopper, 30 Ft. Below Water

A 4-yd. Sauerman scraper machine gives Union Sand & Gravel Co. the production necessary to supply increased plant needs in just one shift. Two were required for their former installation, where a 2½-yd. scraper and smaller hoist were used.

The scraper is powered by a Sauerman three-drum air controlled hoist. The third drum is used to shift the tail block and trolley traveling on the rapid shifting bridle cable. This cable spans 200 ft. between tail towers. The tail trolley provides a method of laterally shifting the Crescent Scraper. When the material is depleted, one or both of the towers are moved to a new location.

Sauerman can help you cut costs

Write us about your materials handling job. Chances are you can use the low cost Sauerman Method. Request Sauerman News No. 144 for more details on the Union installation, also Catalog A for specifications and plenty of on-the-job photos.

SAUERMAN BROS., Inc. 632 SO. 28th AVE. BELLWOOD, ILLINOIS

Research

King-Size Model Gives Researchers . . .

Preview of Pleasant Valley Dam

Pleasant Valley Dam—part of a Snake River hydro-electric project for which Pacific Northwest Power Company is seeking Federal Power Commission license—will have some unusual dimensions.

Large enough to be record-breaking in some instances, the physical and hydraulic dimensions of this outstanding structure are being checked on a 50 to 1 scale model by the Division of Industrial Research, Washington State College, Pullman.

Pleasant Valley will rank close to Seattle's Ross Dam on the Skagit River, world's third highest true-arch concrete dam, at 545 ft. (Switzerland is building 745-ft Mauvoisin; France is building 590-ft Tignes.) At 534 ft in height, Pleasant Valley will be but 16 ft lower than Grand Coulee.

Besides its great height, this proposed installation on the middle Snake River will have the world's largest power equipment of its type. Six 49-ft dia generators will each have 170,000-kw capacity. Six turbines will each develop 233,600 hp, with the largest water wheels ever built in one piece. (The present record unit size is at Grand Coulee where generators of 130,000-kw capacity are turned by 175,000-hp turbines.)

Design and performance of such outstanding features as these will have had full model study before the prototype is constructed. Investigations are now under way to develop answers to hydraulic problems of water elevations, wave actions, velocities, pressures and the like.

Actual conditions of overflow and operation are simulated on a vermiculite-concrete model of the dam and its downstream channel topography. The model of the dam is 10½ ft high and 25 ft long; the channel downstream extends over 60 ft. Two 4,500-gpm pumps send flows up to 7,500 gpm over the model's spillway.

Plans now awaiting FPC approval for Pleasant Valley, and its companion Mountain Sheep Dam, were prepared for Pacific Northwest Power Co. by Ebasco Services, Inc. and Bechtel Corp. Internationally known André Coyne of France was among the notable dam experts consulted.

Both of these planned Snake River Dams are downstream from the controversial Hells Canyon. And Mountain Sheep is to be downstream from Pleasant Valley. The two as an operating unit will produce 1,446,000 kw at a total construction cost of $210 million.

Corrosion Engineers Plan 12th Annual Conference

The 12th Annual Corrosion Conference, sponsored by the National Association of Corrosion Engineers, will be held in New York City March 12-16, 1956.

An exhibition of latest equipment and techniques for the control and prevention of corrosion will be a feature of the conference. Eighty-one exhibitors already have indicated their intention to participate in the show, which will have 123 booths.

Conference discussions will be devoted to corrosion principles, chemical inhibitors, corrosion problems in the petroleum industry, oil and gas production, chemical industry, steel metallurgy, power and communications, pipeline problems, corrosion of high purity water, cathodic protection, high temperature corrosion, plastics, protective coatings and instrumentation. Three educational lectures will be given on: "Mechanism of Corrosion Inhibitor Action"; "Relationship of Thin Films to Corrosion" and "Techniques of Thin Film Study"; and "Effects of Velocity on Corrosion."

Information can be obtained from A. B. Campbell, Executive Secretary, N.A.C.E., 1061 M&M Building, Houston 2, Texas.

New Fire-Retardant Paints Developed by Army Engineers

To the list of fire-retardant paints can now be added some developed by the Corps of Engineers Research and Development Laboratories, Fort Belvoir, Va. for use all over the world.

After exposures of six months and a year in the Arctic, desert, tropics and at Fort Belvoir, the new paints were returned to the laboratory and evaluated by burning test panels in a cabinet under controlled conditions, and calculating the amount of weight loss and char volume.

While the new fire-retardant paints do not stop fires, they do retard them and reduce damage and loss of life. The secret of their protective action lies in the fact that they contain pigments and oils that form a spongy insulating layer when subjected to heat. Otherwise, the paints possess the same esthetic and insulating properties of regular interior and exterior paints.

By lessening the damage from nuclear bomb blasts, the new paints could become an aid in our civil defense programs.

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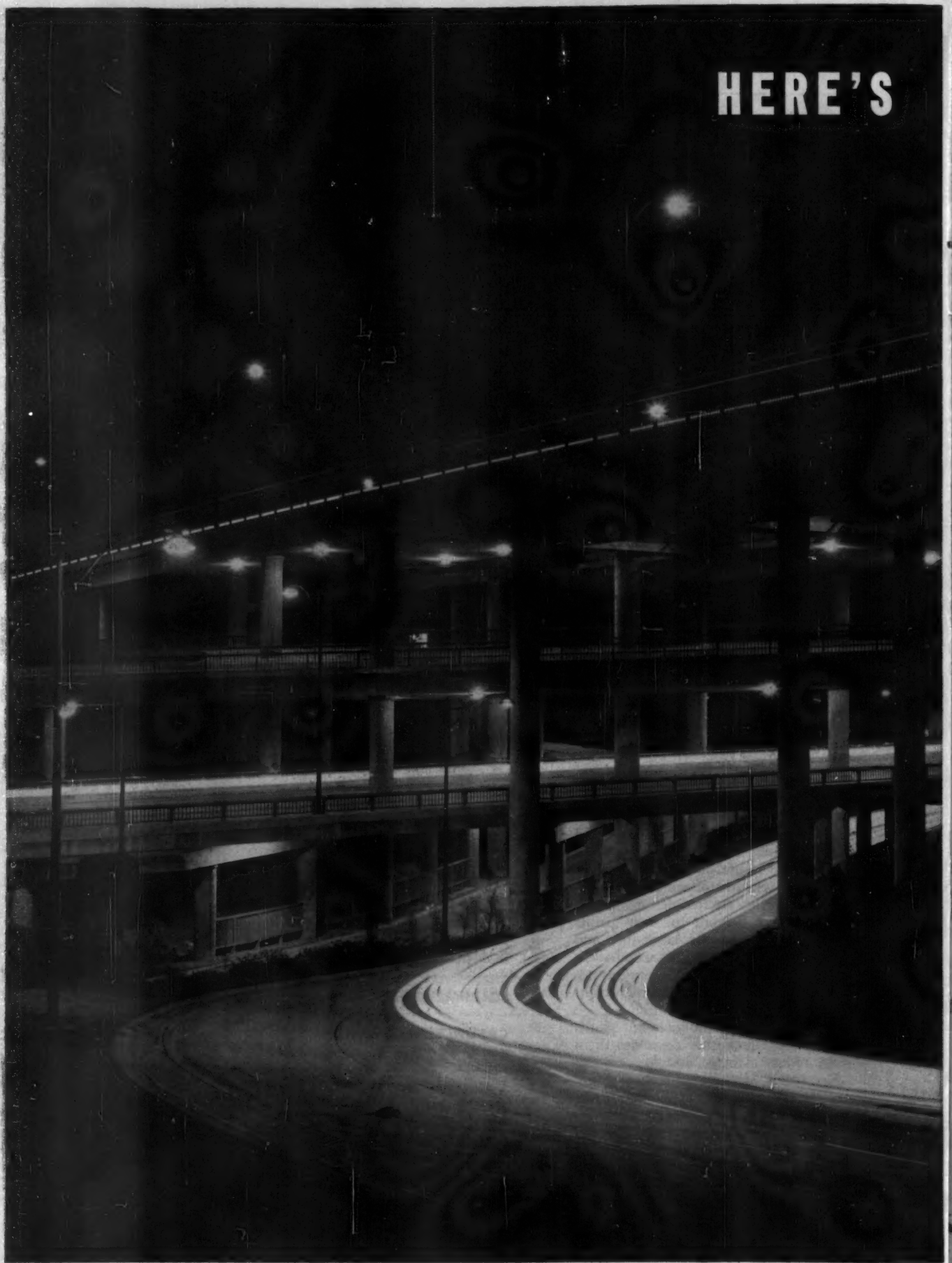


Courtesy California Division of Highways

WHERE THE FLEX-PLANE BRIDGE and ELEVATED HIGHWAY MECHANICAL FINISHER SHINES

To alleviate traffic flow through congested areas, highway engineers are resorting more and more to the elevated roadway. Moving traffic up in the air permits additional facilities with a minimum of disturbance to existing roadways, businesses, etc.

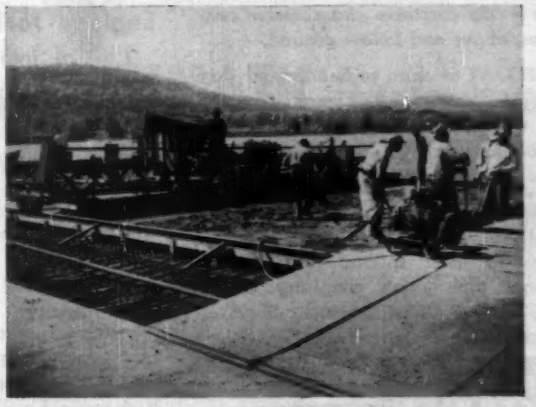
Building an elevated highway is something different than running a roadway along the ground. It requires a special knowledge and special machinery.

That's where the Flex-Plane Elevated Highway Finishing Machine enters the picture. It permits the smooth surfacing of elevated highways in the same efficient manner in which standard roadways are finished.

The Flex-Plane Elevated Highway machine has long been a favorite with leading eastern construction firms who designed and built the first large elevated systems. The famed Tri-Borough Bridge, the Henry Hudson Parkway, the elevated sections of the New Jersey Turnpike and many of Manhattan's and Long Island's thruways have been finished with Flex-Plane equipment. **In fact**—No other company has the experience of Flex-Plane in Engineering and Building Elevated Highway Finishing Machines.

Remember the name Flex-Plane when next you're in the market for finishing machines —for Flex-Plane is the nation's leading producer of mechanized finishing equipment.

Get your copy of this BRIDGE and ELEVATED HIGHWAY FINISHING booklet. It explains how others have achieved perfect finishing on all types of elevated structures.



Flex-Plane Mechanical Elevated Highway and Bridge Finisher working elevated approaches and deck of the Tappan Zee crossing of the Hudson River on the New York Thru-way.

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Because coal tar is nature's own protection against corrosion, TAPECOAT resists moisture, acids, alkalis, soil stress, electrolysis, chemical fumes, fly ash, salt water, salt-laden air, barnacles, and other severe corrosive and abrasive conditions, above and below ground.

TAPECOAT is clean to handle and easy to apply by spiral or "cigarette" wrapping with the use of a torch to bleed the coating to insure a continuous bond. It cuts maintenance and replacement costs.

TAPECOAT is sized to the job—comes in rolls of 2", 3", 4", 6", 18" and 24" widths to meet specific requirements on pipe, pipe joints, couplings, tanks, cable, conduit and other vulnerable steel surfaces.

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Men and Jobs

Three Engineers Retiring From Service With du Pont

Three engineers who have been with E. I. duPont de Nemours and Company since 1934 are retiring this month from the company's engineering department. They are Stanley R. Duncan, E. Russell Johnston and William H. Kiler.

During his construction career, which began with the Southern Pacific Railroad in 1909, Kiler has designed and built many explosives plants in both North and South America. He was assistant chief engineer for Hercules Powder Co. for several years before joining duPont as construction superintendent. Promoted to project engineer and later to design project manager, Kiler became principal standards engineer in 1949.

Duncan has served as designer for the company's various industrial departments. During World War II, he was assigned to the Manhattan Atomic Project.

Formerly associated with the City of Philadelphia as designer and assistant engineer in charge of sewage treatment designs and plans, Johnston has served with duPont as leading designer, section leader and assistant project engineer on both company and government projects.

Corps of Engineers Names England to Post in Alaska

Lt. Col. John E. England, resident engineer for the Alaska District of the Corps of Engineers, has been named chief of the district's construction division. Now returning to a civilian status, he replaces Malcolm R. Gilpin, Jr., recently assigned to the Southwestern Division in Dallas (ENR,Dec. 8,p.92).

During the last seven years, England has supervised some of Alaska's toughest projects. He was first assigned as resident engineer for construction at Eielson Air Force Base near Fairbanks and later supervised construction of the $40-million Haines to Fairbanks pipeline and the building of Aircraft Control and Warning units in remote sites throughout the territory.

Iranian Project Executive Named by New York Firm

Reginald C. Smith of New York has been appointed director of engineering for a seven-year social and economic development program to be carried out in Iran by the New York architect-engineer firm of Litchfield-Whiting-Panero-Severud & Associates.

The project, undertaken by the Iranian government, will consist of the design of utilities, health centers, schools, agricultural colleges, hospitals, power plants and other facilities required for the social and economic development of the southern portion of Iran. Similar development programs will be carried out in the northern and central portions of the country by French and German firms.

Before his association with Guy B. Panero Engineers, Smith was a partner in the engineering firm of Knowles Associates.

Ohio Turnpike Engineer Will Resign This Month

Theodore J. Kauer has resigned as chief engineer of the Ohio Turnpike Commission, effective December 31.

Formerly Director of Highways for the State of Ohio, Kauer has been chief engineer for the Turnpike Commission since 1952. As highway director, he helped establish the design standards for the turnpike, now considered one of the world's safest highways.

Although he first joined the Ohio Department of Highways as a design and construction engineer in 1927, Kauer has since served with a number of federal agencies and private concerns. Among them are the Civil Aeronautics Administration (airport engineer), American Concrete Pipe Association (assistant secretary and Washington representative) and the Wire Reinforcement Institute (managing director). He was appointed Director of Highways for Ohio in 1949 and served in that capacity until he resigned to take his present post with the Turnpike Commission.

Training Program Planned By Iowa Highway Commission

Faced with a shortage of trained personnel, the Iowa Highway Commission has scheduled a training program of its own at Iowa State College beginning Jan. 4.

Sixty-four rodmen, selected from 100 aspirants, will be enrolled in a 10-week course at the college. Those successfully completing the course will be upgraded to jobs as instrument men.

Chief engineer John G. Butter recommended the program as a means of meeting Iowa's big 1956 highway program. Five of the commission's assistant resident engineers will serve as instructors.

Chicago South District Filtration Plant

Years and Years Ahead in PNEUMATIC Instruments and Controls For Water Works Service

Because this equipment is specially designed for water works service, the Builders Pneumatic System is outstandingly successful in operation. Builders Pneumatic Instruments and Controls are now giving top performance on many important installations across the country, including Chicago's South District Filtration Plant, the world's first and largest pneumatically equipped plant, built in 1946.

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For a first-hand look at the advantages of Builders Pneumatic Instruments and Controls, visit one of the many installations now in service. We will be glad to help arrange such a visit for you. Write Builders-Providence, Inc., 390 Harris Ave., Providence 1, Rhode Island.

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. . . Men and Jobs

New Architectural Firm Established in Chicago

A new architectural firm has been established in Chicago under the name of Howard T. Fisher & Associates Pruyn and Bryant Inc.

With Howard T. Fisher, consulting architect to the United Nations, as board chairman, it represents a merger of the architectural and planning functions of Howard T. Fisher & Associates and the architectural firm of Bryant and Walchli.

Members of the organization are John A. Pruyn, Fisher, Daniel C. Bryant and Edward J. Walchli. President is John A. Pruyn.

The Fisher organization, whose research and development work is not affected by the merger, has specialized in institutional and industrial projects and is widely known for its pioneering work in shopping centers. Active in the international field, it has supervised projects in Burma, Cyprus, Colombia, Canada and the South Pacific.

The firm of Bryant and Walchli has specialized in school, hospital and institutional architecture.

Engineering Examiners Name Bruce Williams President

The National Council of State Boards of Engineering Examiners, at its recent annual meeting in Washington, D. C., elected Bruce Williams of Joplin, Mo., president, and Edward R. Stapley of Stillwater, Okla., to the newly created office of president-elect.

Mr. Stapley will automatically become president at the next annual meeting, which is to be held at the Statler Hotel in Los Angeles, Aug. 23-25, 1956.

New directors are L. E. McCartt, Covington, Ky., and W. H. Larkin, New York, N. Y. T. Keith Legare of Columbia, S. C., continues as executive secretary.

Men and Jobs Briefs . . .

• **Associations**—The Institute of Steel Detailers, Inc. completes its organization and names **Harry L. Vogel** president and **Paul S. Lipson** executive director with offices in New York . . . **Frank H. Cothran**, Rocky Mount, N. C. public works director is elected president of the East Carolina Engineers Club . . . **Robert F. Erickson, Jr.**, with Stanley Engineering Co., Muscatine, Iowa is named head of ASCE's Tri-City Section.

The Professional Engineers of Oregon elect **James G. Kirwan**, Westing-

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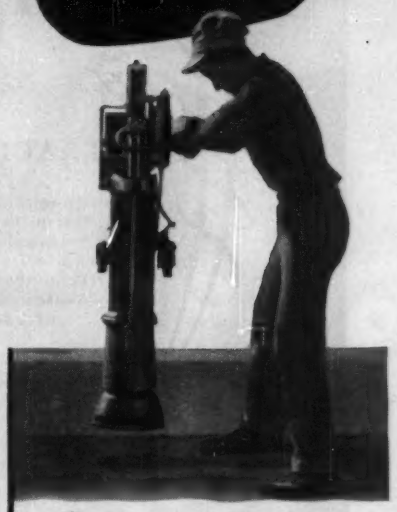
house Electric engineer, as president . . . **Emory M. Ford,** chairman of Huron Portland Cement Co., is re-elected chairman of the board of Portland Cement Association . . . **Martin A. Mason,** dean of George Washington University School of Engineering, is named chairman of ASCE's Committee on Research.

• **Corps of Engineers**—Preliminary to an assignment in Latin America, **Col. Delbert B. Freeman,** technical liaison chief in the Washington Headquarters, is assigned to the Army Language School. His successor is **Col. Stanley Reiff,** former district engineer at Tulsa, Okla. . . . **Col. John C. Dalrymple,** executive officer in the Huntington, W. Va., District Office, becomes senior military advisor to The Director, Operations Research Office in the office of the Army Chief of Staff and is succeeded by **Lt. Col. Walter E. Mather.**

• **Careers**—**Mitchell W. Tinder,** Kentucky Highway Commissioner, resigns after 25 years of state service . . . **Lloyd C. Woolfe,** who came to the Oregon Highway Department from the Bureau of Reclamation, is named chief geologist for the department, succeeding **Lewis Scott,** now with the U. S. Bureau of Public Roads in Costa Rica . . . **C. Ray Greene** is elected chairman of the Duval County, Fla., Expressway Authority created to refinance and complete the $60-million Jacksonville highway project . . . **Charles L. Dearing** of the Brookings Institute is named executive director of the Illinois State Toll Highway Commission.

• **Business**—**Louis J. Corbetta,** vice president of Corbetta Construction Co., Inc., is appointed project manager for construction of the $17-million seaport and fuel supply base at Rota, Spain . . . **Carl M. Lippincott,** planning engineer for the Los Angeles Division of Todd Shipyards Corp., becomes assistant general manager of the New Orleans division . . . **Rudolf Wolff** is named vice president of Hilp & Rhodes, San Francisco construction company.

Robert J. Hansen, Myle J. Holley, Jr. and **John M. Biggs** form the firm of Hansen, Holley, and Biggs, specializing in structural engineering in Cambridge, Mass. . . . **George Fred Pelham, Jr.,** New York architect and vice president of Thompson-Starrett, Co., Inc., joins the architectural and engineering firm of Kelley & Gruzen, New York, as an associate.

"The BARCO RAMMER Pays for ITSELF!"

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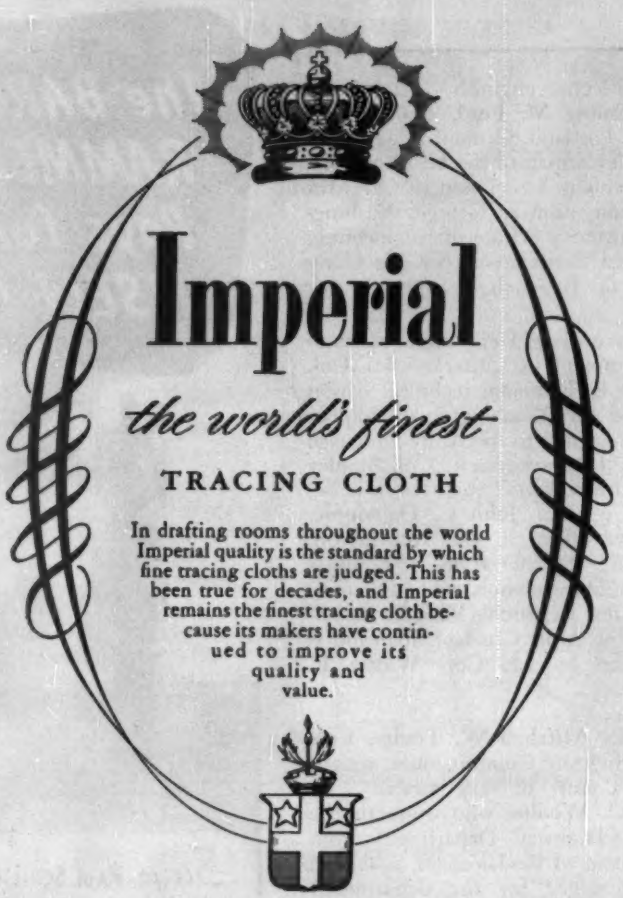
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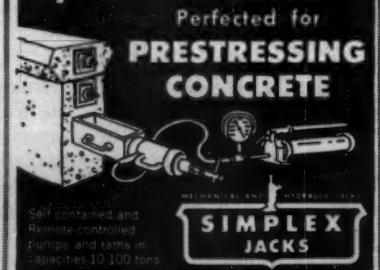

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Obituaries

McKean Maffitt, 71, an engineer with the Wilmington, N. C., sewerage and water department for 27 years, died Nov. 27. The North Carolina Section of the American Water Works Association, of which Maffitt was one of the founders, annually presents the Maffitt Membership Cup in his honor.

Burwell Bantz, 71, who served as Washington State Highway Director from 1941 to 1945, died Nov. 22 at Chehalis, Wash., where he had been city engineer in recent years. A 1909 graduate of the University of Washington, Bantz had a long record of public service in the state. He had been Island County engineer for three years and Lewis County engineer for 17 years, as well as Tacoma City engineer from 1945 to 1948.

George Curtis Wallace, 49, civil engineer employed by Metcalf & Eddy, Boston engineering consultants, died Nov. 20 in Madrid, Spain. He was working on U. S. air base construction in Spain. Wallace, a graduate of Cornell University in 1931, served with the Seabees in Hawaii and Guam during World War II.

James A. Newlands, 78, president of the Henry Souther Engineering Corporation, died at Hartford, Conn., Dec. 2. He headed the corporation since 1913. Newlands, an authority on flood control, stream pollution and public health, was engaged in the study of hydraulic problems on the Chicago Drainage Canal.

Hymen Shifrin, 62, a member of the engineering firm of Horner & Shifrin, died in St. Louis, Nov. 23. He was coauthor of an airport development plan for the St. Louis area. His studies of city and county sewerage problems led to establishment of the St. Louis Metropolitan Sewer District. A native of St. Louis and a 1912 graduate of Washington University, Shifrin served for a time as consulting engineer on street and sewer construction in his home city. With W. W. Horner, former city construction engineer, he formed the partnership of Horner & Shifrin in 1933.

John C. Wenrick, 62, city engineer of Cleveland, Ohio, died Oct. 30, two days before he was to leave his post to become consulting engineer for the city. He had been city engineer since 1939, and had served in the city's engineering department for 14 years.

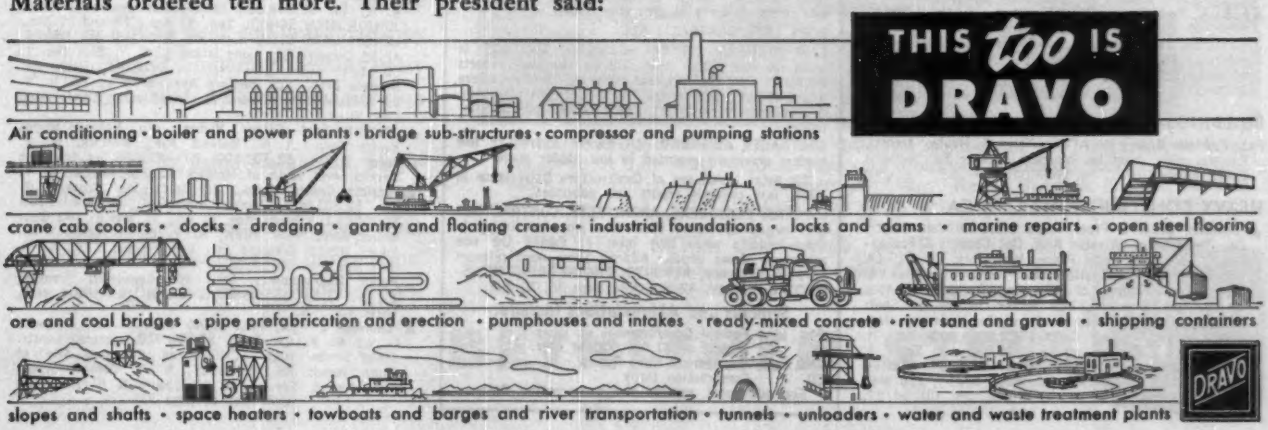
THE CUSTOMER DOUBLED HIS BARGE ORDER

Southern Materials Company, a James River, Virginia, sand and gravel producer had barge problems. The wooden units in their fleet were too easily damaged and required constant repair. Operating, as well as maintenance costs, were rising.

Ten Dravo-built welded steel barges, now in service, are correcting this situation. They are more rugged, move faster and carry bigger payloads. Out-of-service time is reduced.

Before these barges were delivered, Southern Materials ordered ten more. Their president said: "After more than ten years of babying conventional wooden types, these new steel units have changed our entire thinking with regard to barge service and life."

This floating equipment is another example of how Dravo has been serving business and industry for more than 60 years in many engineering fields, with customer satisfaction considered essential in every transaction. For more information write DRAVO CORPORATION, PITTSBURGH 25, PENNA.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Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† Me., Bangor—QUARTERS—BA On Or About 12/29—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., bachelor officers' quarters, officers' club and and N.C.O. club, Dow Air Force Base, ENG-19-016-56-70, $700,000-$800,000. Plans deposit $30. CD 12/2/54.

BUILDINGS—BA

▲ Conn., Fairfield—SCHOOL—BA 12/20—Diocese of Bridgeport, Most Rev. Lawrence J. Shehan, Bishop, Chancery Office, 359 Washington Ave., Bridgeport, parochial high school, North Park Ave. $4,000,000. Plans deposit $50. Lyons & Mather, 211 State St., Bridgeport, archts. Hill & Harrigan, 909 Whalley Ave., New Haven, mech. engrs. (Correction—estimated cost and bid date). CD 11/15.

HEAVY CONSTRUCTION—LB & CA

Samuel Aceto, 40 Preble St., Portland, Me., LB $305,915, est. $300,000. sewage work imprvs. KEENE, N. H. City, P. Wks. Dpt., 580 Main St., Keene, N. H. Bids Nov. 28. CD 11/11

Southern New England Co., Inc., 66 Sanford St., Hartford, Conn., LB, $353,000. swimming pools, Keney Park and Goodwin Park, Contr. E-55-247-2, HARTFORD, CONN. City, Municipal Bldg., 550 Main St., Hartford, Conn. Bids Nov. 29. CD 11/9.

BUILDINGS—LB & CA

Trumbull-Nelson Co., 11 Lebanon St., Hanover, N. H. CA $587,800, est. $550,000. Union HIGH SCHOOL, Rte. 4, WEST WOODSTOCK, VT. Union High School Dist. No. 4, Towns of Pomfret, Bridgewater and Woodstock, West Woodstock, Vt. Bids Nov. 3. CD 11/10, under LB.

▲ Neri Constr. Co., Millbury, Mass. LB $1,246,450. Regional High SCHOOL, NORTHFIELD, MASS. Pioneer Valley Regional School Dist., Northfield, Mass. Bids Dec. 1. CD 11/4.

W. K. Megin Constr. Co., 51 Elm St., Naugatuck, Conn. CA, $350,000, RESTAURANT and BANQUET HALL, and parking, Wilbur Cross Hy., BERLIN, CONN. Albert M. Levitt Co., Inc., 100 College St., New Haven, Conn. CD 9/4.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† N. J., Lakehurst—JET SHED FACILITY—BA 12/29—Dpt. Navy, Phila. Naval Base, Phila., Pa., jet shed facility, Naval Air Station, NOY 89921, Spec. 48604, $650,000. Extended date. Louis Berger & Assocs., 88 Main St., East Orange, archts. CD 11/10.

▲† New York—BA About 3/6—U. S. Eng., Niagara and Bridge Sts., Buffalo, Zone 7, Grass River Lock, St. Lawrence Seaway, St. Lawrence River, N. Y., 860 ft. length of lock and 80 ft. width, lock walls and guard and guide walls are gravity type walls, 70 to 113 ft. height of lock walls, 3,500 lin. ft. total length of upper and lower guide and guard walls, these walls vary in height from 44.5 to 49 ft., 3,600,000 cu. yd. common excav. (for St. Lawrence Seaway Development Corporation) CIVENG-30-023-56-30. Plans deposit $25. CD 9/9/54.

BUILDINGS—BA

▲† N. J., Fort Dix—HOUSING—BA On Or About 12/22—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., permanent family housing and related site imprvs. and utilities, ENG-36-109-56-39. $5,000,000. Charles J. Kupper, 15 Stelton Rd., New Market, archt. CD 8/18/52.

BUILDINGS—SLC

Pa., Fairless Hills—THEATER—Tully & Hobbs, archts., Fairless Hills, soon let contract, theater for Danherst Corp., Fairless Hills, Pa. $344,000.

HEAVY CONSTRUCTION—LB & CA

▲ Johnson, Drake & Piper Corp., Grafe-Callahan Constr. Co., Tecon Corp., Winston Bros. Co., Conduit & Foundation Corp., 66 Trinity Place, New York, N. Y. CA $35,719,589. combination, for westerly portion of West Delaware tunnel of Delaware system, Contr. 451, 43,100 lin. ft. tunnel, incl. intake channel and Shaft 1, approx. 520 ft. deep, towns of Tompkins and Hancock, Delaware Co.; Contr. 452, 60,000 lin. ft. tunnel incl. Shaft 2 approx. 310 ft. and Shaft 3, approx. 460 ft. deep in towns of Hancock and Colchester, Delaware Co., NEW YORK. Bd. Water Supply, 120 Wall St., New York 5, N. Y. Bids Oct. 25. CD 10/27, under LB.

▲ NEW YORK—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
N. Y.—Depew Paving Co., Inc., 4955 Broadway, Depew, N. Y. LB $3,591,778. (5 bidders) constr. west of Hamburg and 8.03 mi. portion of four lane divided Erie Sect. of State Thruway, starting at Evans Center-Eden Rd. and exten. northeastward on east side of Rte. 20 to about 1,000 ft. southwest of Camp Rd. (Rte. 75), Erie Co.;
N. Y.—S. J. Groves & Sons Co., Empire Bldg., Syracuse, N. Y. LB $1,740,309. (4 bidders) traffic interchange facilities between Erie Sect. of State Thruway and Rtes. 5 and 20 in Irving, Chautauqua Co.;
N. Y.—O. W. Hubbell & Sons, New Hartford, N. Y. $144,038. (4 bidders) furnishing, erecting 4 ft. high woven wire fence at various points along State Thruway between Suffern and Nyack in Rockland Co., Bids Dec. 1;
N. Y.—received no bids Dec. 1, washout repairs on 12.29 mi. sect. of Taconic State Parkway between Lafayetteville and Rte. 82 new W. Taghkanic, Columbia and Dutchess Counties, est. $73,000. CD 11/14 and 11/15.

▲ NEW YORK—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y. LB $3,338,220. (4 bidders) elimination of Long Island R. R. grade crossings at Grand and Milburn Aves. in hamlet of Baldwin and at Brookside Ave. in village of Freeport, exten. of Rockwood Ave. across Sunrise Hy. and under elevated L. I. R. R. to Chestnut St. in Baldwin, Nassau Co. Bids Dec. 1. CD 11/14.
Schutt Constr. Co., Genoa, Wis. LB $211,310. clearing of Long Sault and Delaney Islands and adjacent Mainland areas near Massena, St. Lawrence Co., Spec. PA-5-11014, St. Lawrence Contr. No. 24, NEW YORK. The Power Auth. of the State of New York, 270 Broadway, New York, N. Y. Bids Dec. 1. CD 11/15.
† Morris & Cumings Dredging Co., Inc., 44 Whitehall St., New York 4, N. Y. LB $211,990. (2 bidders) dredging approx. 124,700 cu. yd. all material except ledge rock from Dutch Kills, Newtown Creek, Queens Co., CIVENG-30-075-56-30, NEW YORK. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Dec. 1. CD 11/14.

▲ J. L. Murphy, Inc., 340 E. 44 St., New York 17, N. Y. LB $1,043,230. (3 bidders) furnishing, installing piping, misc. equip. for 75 Street Power Plant, Manhattan Boro, Contr. P-144, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Nov. 25. CD 11/17.

▲† American Dredging Co., 12 S. 12 St., Phila., Pa., CA $2,356,900. dredging Mantua Creek Anchorage, Delaware River, Gloucester Co., NEW JERSEY. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids Oct. 7, awarded Nov. 25. CD 11/10, under LB.

▲ PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
J. Robert Bazley, Inc., P. O. Box 117, Pottsville, Pa. CA $1,434,612. 24 ft., rein.-con. bridge, repairing an existing concrete arch bridge, I-beam bridge, over Rock Bottom Creek, 4.95 mi. Dunmore Boro, southeasterly, U. S. 611, Lackawanna Co. CD 11/23, under LB.
Harry C. Erb, Inc., Bala, Pa. LB $102,969. grading, paving Henry Ave., PHILA. PA. City, Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Nov. 29. CD 11/14.

▲ Nello L. Teer Co., Trust Bldg., Durham, N. C. LB $3,020,741. Contr. PT-104, section of approach expressway, incl. bridges, culverts, access roads, interchanges, Baltimore, Patapsco Tunnel Proj., MARYLAND. State Rds. Comn., 108 E. Lexington St., Baltimore 2, Md. Bids Dec. 1. CD 11/25.

▲ Square Constr. Co., 115 S. Haven St., Baltimore, Md. LB $2,767,190. Contr. PT-121, viaduct over Bayview Yards of P. R. R. and B. & O. R. R., Patapsco Tunnel Proj., MARYLAND. State Rds. Comn., 108 E. Lexington St., Baltimore 2, Md. Bids Dec. 1. CD 11/10.
Helsing Bros., Inc., 4207 39th St. N. W., Wash., D. C., LB, $164,919, paving roadway Sargent Rd. N. E. from S. Dakota Ave. to District line, WASH., D. C. D. C. Govt. Hy. Dpt., 499 Pa. Ave. N. W., Wash., D. C. Bids Nov. 28. CD 7/14/44.

BUILDINGS—LB & CA

▲ T. G. K. Constr. Co., Inc., 55 W. 42 St., New York 36, N. Y. LB $2,104,500 (4 bidders) general constr. JUNIOR HIGH SCHOOL 1278, Stuart St. and Filmore Ave., BROOKLYN, N. Y. Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City 1, N. Y. Bids Nov. 30. CD 11/4.
Charles Michaels, Inc., 315 Gold St., Brooklyn 1, N. Y. LB $349,852. (7 bidders) electrical work (Brooklyn, N. Y.).

▲ Caristo Constr. Corp., 26 Court St., Brooklyn 2, N. Y. LB $1,353,000 (7 bidders) general contract PUBLIC SCHOOL 262, Underhill Ave. and Bergen St., BROOKLYN, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Nov. 25. CD 10/19
Elwood Park Estates Homes, c/o Butterly & Green, Inc., 168-25 Hillside Ave., Jamaica, N. Y. Owner Builds. $800,000. 25 HOUSES on tract at Elwood Rd. north of Jericho Turnpike, HUNTINGTON, N. Y.

▲ Lazere Constr. Corp., 66 Park Ave., New York 16, N. Y. LB $2,395,000. (16 bidders) general constr., for Criminal COURT BLDG. and PRISON, Queens blvd., Hoover Ave., 132 St. and 82 Ave., Queens Boro, KEW GARDENS, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Nov. 30. CD 11/4.

▲ Caristo Constr. Corp., 26 Court St., Brooklyn 2, N. Y. LB $2,246,000 (8 bidders) general contract JUNIOR HIGH SCHOOL 204, 37 Ave., 28 and 29 Sts., LONG ISLAND CITY, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island 1, N. Y. Bids Dec. 1. CD 11/4.
Dropkin Bros., 205 Bedford Ave., Brooklyn 11, N. Y. LB $386,600. (6 bidders) electrical work. (Long Island City, N. Y.).

▲ Merrick Surf Colony Homes, c/o Nassau Homes Realty Corp., 1 N. Merrick Ave., Merrick, N. Y. Owner Builds. $2,300,000. 87 HOUSES on tract on Merrick Ave. south of Merrick Rd., MERRICK, N. Y.

▲ Caristo Constr. Corp., 26 Court St., Brooklyn 2, LB $2,203,000. general contract JUNIOR HIGH SCHOOL, 139 Brook Ave., E. 141 St. and E. 142 Sts., Bronx Boro, NEW YORK, N. Y. Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, N. Y. Bids Nov. 29. CD 10/31.
Public Improvements, Inc., 356 Broadway, Brooklyn 11, N. Y. LB $355,888. (6 bidders) electrical work, (New York, N. Y.).

▲ Laurence J. Rice, Inc., 61-40 Maurice Ave., Maspeth, L. I., N. Y. CA Total $3,398,910. general constr. Junior-Senior High SCHOOL on 73 acre site at South Woods Rd., SYOSSET, N. Y. Central School Dist. No. 2, Syosset, N. Y. Eggers & Higgins, 100

(Continued on page 83)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

There's a Bolted Steel Frame in This New Building in Florida

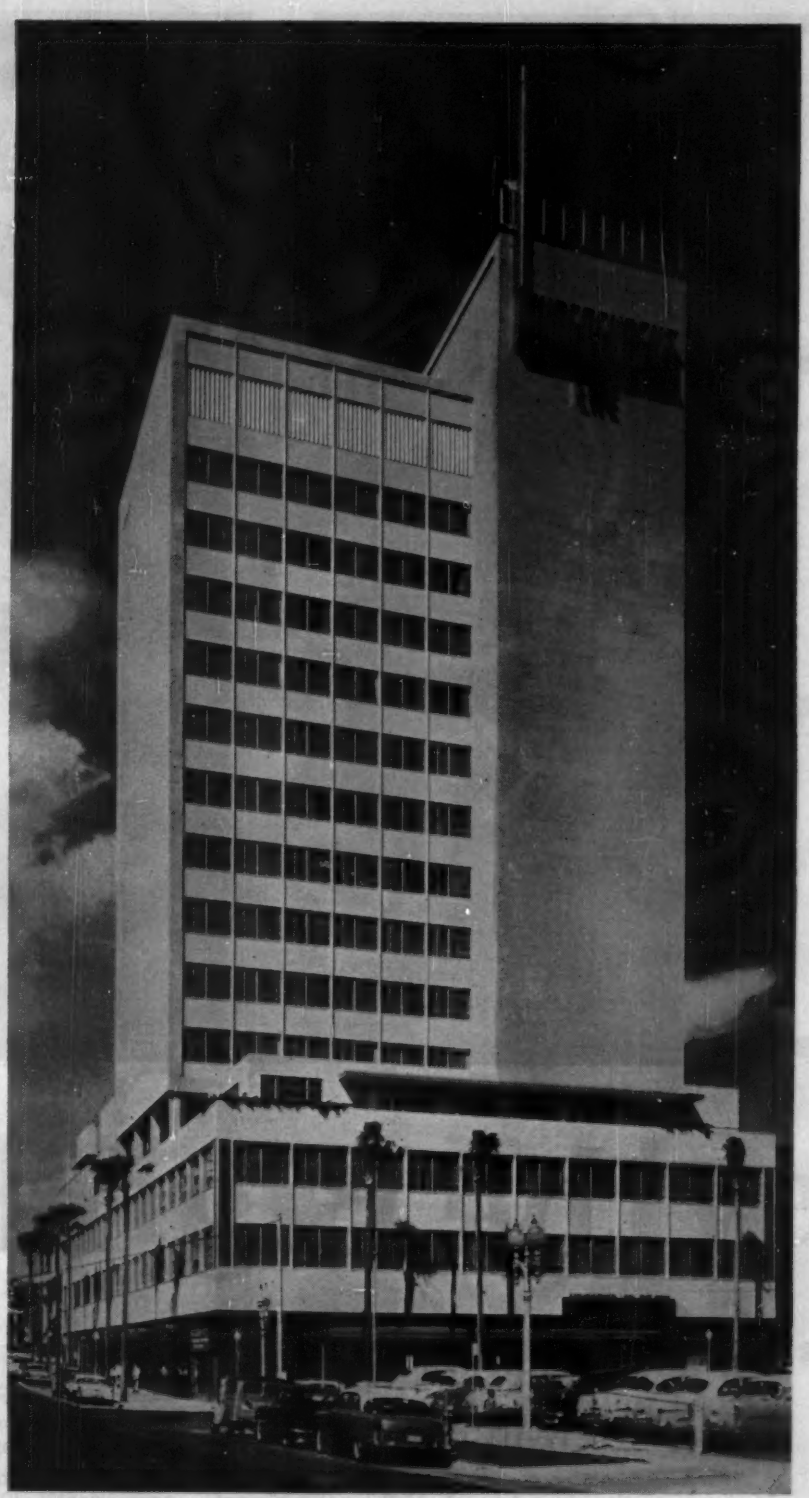
Here's a structure that is winning much favorable comment. It's the home office building of Independent Life and Accident Insurance Company, Jacksonville. It is 18 stories high, and L-shaped, and is topped by an attractive illuminated pylon of stainless steel.

The building, covering 16,800 sq ft of ground area, is faced with Indiana limestone, trimmed with glazed brick. Emerald-pearl Swedish granite is used for the first-floor facing. Mechanical equipment is grouped on the upper floors, an innovation in the Southeast for buildings of this type. The structural members making up the 1500-ton steel framework are bolted together with thousands of Bethlehem High-Strength Bolts.

Bethlehem High-Strength Bolts have come to be widely used in joining structural members. They provide permanently tight joints and make possible a saving in erection time. They are particularly desirable for construction in hospital and school zones, as the pneumatic wrench used in tightening the nuts is less noisy than a riveting gun.

Bethlehem High-Strength Bolts are made of carbon steel, and heat-treated by quenching and tempering, meeting every requirement of ASTM Specification A-325.

Save time by using Bethlehem High-Strength Bolts in your next construction job. The nearest Bethlehem sales office will be pleased to supply full information. Or drop a line to us at Bethlehem, Pa.



Bethlehem High-Strength Bolts join structural members of 1500-ton framework for Independent Life and Accident Insurance Company building, Jacksonville. Steel fabrication and erection by Bethlehem. *Architects:* Kemp, Bunch & Jackson; *General Contractors:* S. S. Jacobs Company; *Consulting Structural Engineer:* J. L. McCollough.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

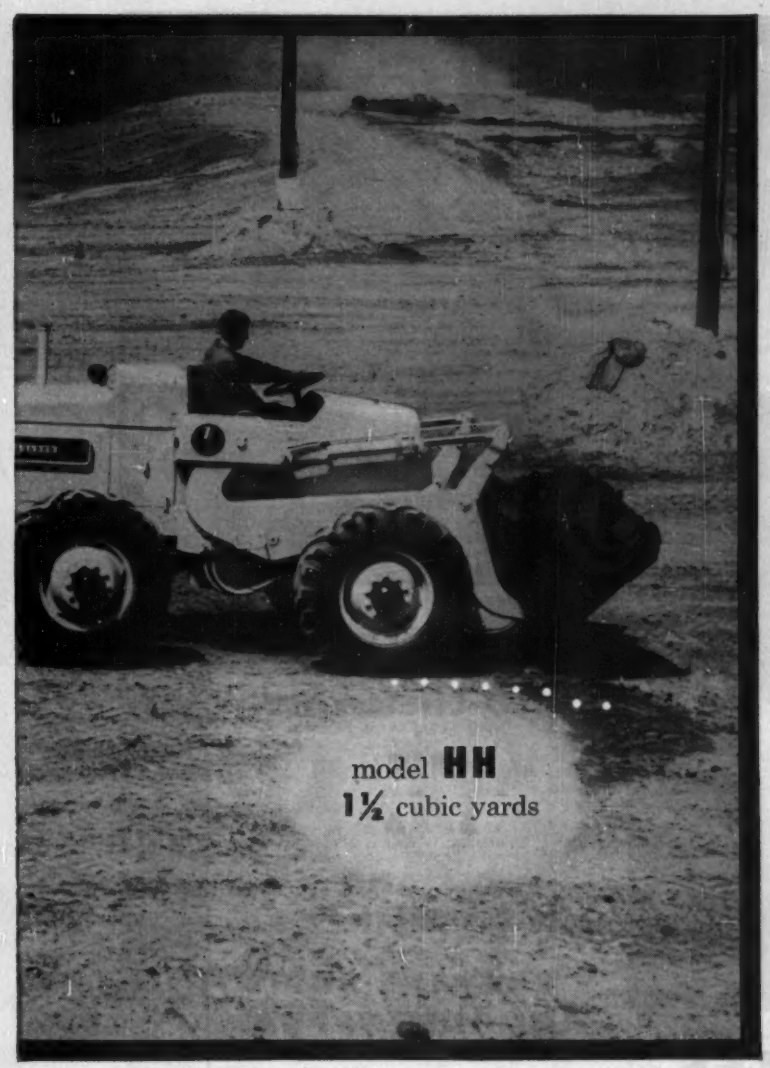
BETHLEHEM STEEL

the Big Three in

All new in design... New in performance

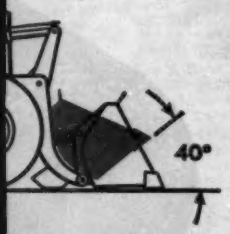
If you want the utmost in wheeled tractor-shovel performance, you want four-wheel-drive, and for the finest in four-wheel-drive you now have a choice of these three "PAYLOADER" sizes. They're all *new*, and each one is way ahead of its class in digging power, carrying capacity, stability, safety and operator comfort. They all feature an amazing new bucket action and boom arm design that is the big reason for the new performance pace they are setting for contractors, public bodies, mines, quarries, utilities.

There's more horsepower per bucket capacity and many other proven Hough advantages that boost output and lower the cost of digging, scooping-up, loading, moving and piling earth and bulk materials. They all feature torque converter drives and multiple speeds in both directions as well as a new closed, pressure-controlled hydraulic system that minimizes dirt-intake and oil-foaming troubles. Your Hough Distributor is ready to demonstrate these great new "PAYLOADER" units and what they can do for you.



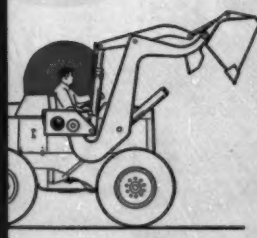
POWERFUL PRY-OUT ACTION

Tremendous pry-out force is obtained by using the breakout pads on the ground as a fulcrum for leverage. The load forces opposing the pry-out action are thus transferred to the ground through the pads instead of to the axle, wheels and hydraulic system of the machine.



40° BREAK-OUT at Ground Level

You can get HEAPED BUCKET LOADS and you get them FASTER and EASIER WITH THIS NEW BUCKET ACTION. Most important of all — you KEEP BIGGER PAYLOADS — because the bucket can be tipped back a full 40 degrees at ground level before it is raised, eliminating spillage.



SAFETY and STABILITY

Special boom-arm shape and positioning keeps moving members out of operator's reach at all positions. Close, low, load-carry position and longer wheelbase provide stability and balance for fast maneuvering — with safety.

Four-Wheel Drive

Your Hough Distributor's continues to be the place to get the most performance and satisfaction for your tractor-shovel dollar. For he sells the "PAYLOADER" line of wheeled tractor-shovels — the pioneer line and the most-proven, most complete line available. He has a "PAYLOADER" size to meet your requirements, whether for four-wheel-drive, rear-wheel-drive or front-wheel-drive types — along with the finest parts and service facilities to protect your tractor-shovel investment.

PAYLOADER®
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THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
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Send full information on new "PAYLOADER" Tractor-Shovels

☐ Model HU ☐ Model HH ☐ Model HO

Name .....

Title .....

Company .....

Street .....

City .....

State .....

THIS HOSE HANDLES ALL SEVEN!

Hewitt-Robins SERVALL All-Service Hose is specifically designed to withstand the maximum abuse of *all* the general services, although light in weight and extremely flexible to provide maximum ease in handling. It's a moderate price heavy-duty hose that renders excellent performance in a great variety of services.

The *tube* is smooth, high-quality synthetic rubber blended to exact specifications to resist the highly injurious action of the diversified materials handled in this service . . . the *carcass* is braided, high tenacity synthetic cord impregnated and imbedded in synthetic rubber which provides maximum strength with minimum bulk. The *cover* is long wearing, tough synthetic that withstands gasoline, oil, weak inorganic acids and alkalies. It also resists weathering, sun and abrasion. This hose comes in sizes from ¼" x 1 braid to 1½" x 3 braid with maximum working pressure from 200 to 300 lbs. and lengths in 500' bales or cut to specification.

Excellent records have been established universally by the Hewitt-Robins Servall® All-Service Hose in the following services.

WATER SERVICE: Hot or cold under severe operating conditions in industrial and other heavy-duty applications.

MILD CHEMICALS: For weak inorganic acids, alkalies, and salt solutions, Ethyl, Methyl and other alcohols.

AIR SERVICE: For *all* types of air tools, air cleaning and general air service.

SPRAY SERVICE: For most insecticides and many oil base weed killing solutions, for paint spray (not lacquer) service in home and shop.

OIL & GASOLINE: For intermittent service (not static grounded), grease, kerosene and other petroleum derivatives.

PROPANE AND AMMONIA VAPOR: For low pressure service as used on agricultural applicators and LPG vapor lines.

WELDING HOSE: For heavy-duty single line service with flame and ozone resistant cover.

Hewitt-Robins

Industrial Hose—Conveyor Belting—Conveyor Machinery—Vibrating Screens—Vibrating Conveyors—Design, Manufacture, Engineering and Erection of Complete Bulk Materials Handling Systems.

HEWITT-ROBINS INCORPORATED • STAMFORD, CONNECTICUT

(Continued from page 78)

E. 42 St., New York 17, N. Y., archts. Bids Nov. 22. CD 7/6.

▲† **Grove, Shepherd, Wilson & Kruge, Inc.,** 400 Madison Ave., New York 17, N. Y. LB $8,073,938, (9 bidders) converting riding hall to ACADEMIC BLDG. U. S. Military Academy, ENG-30-075-56-14, WEST POINT, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Nov. 30. CD 10/21.

Zinn Builders, att. Victor Baron, 130 N. Broadway, Camden, N. J., Separate Contracts, $350,000. RESIDENTIAL DEVELOPMENT, Lake Blvd., LINDENWOLD, N. J. Dante J. D'Anstasio, 1815 Federal St., Camden, N. J., archt.

Bayview Pines Development Co., att. Joseph Iaria, Ocean Gate, N. J. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, OCEAN GATE, N. J. Paul B. West, Toms River, N. J., archt.

Coots Constr. Co., Ocean Gate, N. J., Separate Contracts, $344,000, RESIDENTIAL DEVELOPMENT, Motor Rd., PINE BEACH, N. J. Paul B. West, Toms River, N. J., archt.

Mabie Bros., Pine Beach, N. J., Separate Contracts, $344,000. RESIDENTIAL DEVELOPMENT, Glen Cove, TOMS RIVER, N. J. Paul B. West, Toms River, archt.

Murray Trout, Mill Creek Manor, Toms River, N. J., Separate Contracts, $750,000. RESIDENTIAL DEVELOPMENT, Mill Creek Manor, TOMS RIVER, N. J. Paul B. West, Toms River, N. J., archt.

Harry Pearl, 5200 Overbrook Ave., Phila., Pa. Separate Contracts. $344,000. RESIDENTIAL DEVELOPMENT, Penbree Terrace, ARDMORE, PA.

▲ **Work & Co.,** 20 and Sansom Sts., Phila., Pa. CA $1,300,000. General contract. Boehme Junior HIGH SCHOOL, FALLSINGTON, PA. Pennsbury Joint School Bldg., Auth., Fallsington, Pa. CD 11/28, under LB.

▲ **Orleans Constr. Co.,** 1000 W. Rockland St., Phila., Pa. CA $4,000,000. APARTMENT, 250 units, parking area, GARAGE, ELKINS PARK, PA. Albert Toll, Washington Lane and Ashbourne Rd., Elkins Park, Pa. CD 11/17.

Raymond Faccioli, 3207 Brunswick Ave Drexel Hill, Pa. Separate Contracts. Est. $364,000. RESIDENTIAL DEVELOPMENT, Rte. 100, EXTON, PA. David Slott, 7060 Garrett Rd., Upper Darby, Pa., archt.

▲ **Bellfort, Inc., 1420** Walnut St., Phila., Pa. CA $2,000,000. RESIDENTIAL DEVELOPMENT, Gypsy Lane, GULPH MILLS, PA. Curtis Jones, Inc., 1420 Walnut St., Phila., Pa.

Henry C. Veitz, 322 Clearbrook Ave., Lansdowne, Pa. Separate Contracts. $344,000. RESIDENTIAL DEVELOPMENT, Clearbrook Ave., LANSDOWNE, PA. Erling Wenge, McClatchy Bldg., Upper Darby, Pa., archt.

▲ **Wallace & Berlin,** 69 and Walnut Sts., Upper Darby, Pa. Separate Contracts. $2,250,000. RESIDENTIAL DEVELOPMENT, Ashton Twp., MEDIA, PA. Erling H. Wenge, McClatchy Bldg., Upper Darby, Pa., archt.

▲ **Owner,** c/o Louis J. Cowan, archt., 1505 Pine St., Phila., Pa. Separate Contracts. $2,500,000. RESIDENTIAL DEVELOPMENT, Frankford Ave. and Pearson Aves., PHILA., PA.

James H. Wood, 15 E. North St., Dover, Del. CA, $617,000. men's DORMITORY, DOVER, DEL. Delaware State College, Dover, Del. Bids Nov. 16. CD 11/28, under LB.

▲ **Gordy & Son, Inc.,** Du Pont Blvd., New Castle, Del., Separate Contracts, $5,000,000. 400-unit RESIDENTIAL DEVELOPMENT, near Centerville Rd., NEW CASTLE, DEL.

SOUTH

HEAVY CONSTRUCTION—BA

† **La., Lake Charles**—INTELLIGENCE AND TRAINING BLDGS.—BA 12/21—U. S. Eng., P. O. Box 1229, Galveston, Tex., target intelligence and training bldgs., Lake Charles Air Force Base, ENG-41-243-56-32. CD 8/25.

Virginia—TOLL ADMINISTRATION BLDGS.—BA 12/21—Commonwealth of Va., Dpt. Hys., Central Hy. Office Bldg., 1221 E. Broad St., Richmond, toll admin. bldgs., Rtes. 17 and 258, west of James River Toll Bridge, for James River Bridge Sys. Contr. 2. Plans deposit $5, toll plaza constr., concrete paving, etc., Rte. 17 at James River and Nansemond River Bridges, State Proj. 2046-02; 2061-02, Isle of Wight and Nansemond Counties. Plans deposit $5.

† **S. C., Parris Island**—GAP FILLER FACILITY—BA 12/22—U. S. Eng., 31 Customhouse, Charleston, unmanned gap filler facility, Marine Corps Recruit Depot, No. 38-081-56-42. CD 11/29.

† **Georgia and South Carolina**—BA 12/27—U. S. Eng., 200 East St. Julian St., Savannah, Ga., replacing generator cooling water valves, Clark Hill Proj., Savannah River, Serial No. CIVENG-09-133-56-17.

† **Ga., Macon**—DORMITORIES—BA About 12/31—U. S. Eng., 20 E. St. Julian St., Savannah, two airmen's dormitories, Robins Air Force Base, ENG-09-133-56-28. CD 9/19.

† **Ga., Valdosta**—DORMITORIES, etc.—BA About 12/31—U. S. Eng., 200 E. St. Julian St., Savannah, 3 airmen's dormitories and dining hall, Moody Air Force Base, ENG-09-133-56-28. CD 9/19.

† **Fla., Cocoa**—TOWERS—BA On Or About 1/11—U. S. Eng., P.O. Box 4970, Jacksonville, Zone 1, Theodolite Towers (FY-51), Air Force Missile Test Center, Patrick Air Force Base, ENG-08-123-56-39. CD 9/19.

BUILDINGS—BA

Ga., Dahlonega—SCHOOLS—BA 1/17—State School Bldg. Auth., Kemper Bldg., 41 Exchange Pl. S.E., Atlanta, Lumpkin County Colored Elementary School, Lumpkin County High School addn., East Side Elementary School addn.; Yahpola Elementary School; Cane Creek Elementary School addn., Dahlonega Elementary addn. and remodeling and Southside Elementary School all in Lumpkin Co. Plans deposit $50. William J. J. Chase & Assocs., 502 Candler Bldg., Atlanta, archts.

BUILDINGS—SLC

▲ **Fla., Jupiter**—VILLAGE, etc.—Jupiter Corp. & Upholsterers Union of North America, 1500 N. Broad St., Phila., Pa., at Hotel Connally, West Palm Beach, soon lets contract constr. Welfare Village, shopping center, cottages, lodges. $7,000,000. Rufus Nims, 2982 22 St., Miami, archt.

HEAVY CONSTRUCTION—LB & CA

† **Vanguard Constr. Corp.,** 3508 Westminster Ave., Norfolk, Va., LB $654,408. Pennsylvania R.R. overpass, Naval Amphibious Base, NOY 86554, Spec. 45298, LITTLE CREEK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Nov. 29. CD 11/9.

▲† **E. C. Ernst, Inc.,** 1622 14 St. N.W., Wash., D. C. CA $2,021,044. electrical distr. sys. First Increment Expansion, U. S. Naval Base and Naval Air Station, NOY 88364, Spec. 45336, NORFOLK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Nov. 8. CD 11/21, under LB.

† **B. A. Bowles,** 118½ Main St. E., Salem, Va., LB $127,698, est. $90,000, alterations, addns. to 3 small grain curing houses and large grain motor loading bldg., Radford Arsenal, ENG-44-110-56-11, RADFORD, VA. U. S. Eng., foot of Front St., Norfolk, Va. Bids Nov. 30. CD 11/18.

▲† **Southern Constr. Co., Inc.,** Daniel Field, Augusta, Ga., CA $1,054,350. bachelor officers' quarters, Marine Corps Auxiliary Landing Feld, NOY 91175, Spec. 49110, BEAUFORT, S. C. P. Wks. Officer, Sixth Naval Dist., Bldg. 12, U. S. Naval Base, Charleston, S. C. Bids Nov. 29. CD 11/4.

▲† **McDonough Constr. Co. of Georgia,** 7 Baltimore Pl. N.W., Atlanta, Ga., CA $2,213,013. barracks and subsistence bldg., Marine Corps Auxiliary Landing Field, NOY 91176, Spec. 49111, BEAUFORT, S. C. P. Wks. Officer, Sixth Naval Dist., Bldg. 12, U. S. Naval Base, Charleston, S. C. Bids Nov. 23. CD 12/1, under LB.

† **Boyle Constr. Co.,** 30 E. Liberty St., P.O. Box 471, Sumter, S. C., LB $172,543, officers club, Myrtle Beach Air Force Base, No. 38-081-56-25, MYRTLE BEACH, S. C. U. S. Eng., 31 Customhouse, Charleston, S. C. Bids Nov. 18. CD 10/27.

† **McDonough Constr. Co. of Georgia,** 7 Baltimore Pl. N.W., Atlanta, Ga., CA, $485,257, B.O.Q. and weather station, ENG-09-133-55-76, Dobbins Air Force Base, MARIETTA, GA. U. S. Eng., 200 E. St. Julian St., Savannah, Ga. CD 6/20.

FLORIDA—Florida State Turnpike Auth., 715 N. Federal Hy., Dania,

FSTA—**Powell Bros., Inc.,** 4500 S. State Rd. 7, Davie, Fort Lauderdale, Fla., LB, $449,394. 5 bridges, Broward and Palm Beach Counties;

FSTA—**O'Loughlin & Hansen, Inc.,** 869 Talleyrand Ave., Jacksonville, Fla., LB, $399,533. 3 bridges, St. Lucie Co. Bids Dec. 1. CD 9/19/52, under Streets and Roads.

▲ FLORIDA—Florida State Turnpike Auth., 750 N. Federal Hy., Dania,

FSTA—**Cone Bros. Contg. Co.,** Caeser and Cumberland Aves., Tampa, Fla., LB, $838,768, roadbed and base 10 mi., St. Lucie Co.;

FSTA—**Brinson Constr. Co.,** 51 St. and E. Bdwy. Ave., Tampa, Fla., LB, $629,450. roadbed and base 10-mile section, Palm Beach Co.;

FSTA—**Troup Bros., Inc.,** 251 S. Dixiey Hy., Miami, Fla., LB, $713,790, roadbed and base 10-mile section, Martin Co. Bids Dec. 1. CD 9/19/52.

† **Hill Dredging Corp.,** 921 N. Missouri Ave., Atlantic City, N. J., LB, $571,680, hydraulic fill, Cape Canaveral Air Force Missile Test Center, ENG-08-123-56-29, COCOA, FLA. U. S. Eng., P.O. Box 4970, Jacksonville 1, Fla. Bids Nov. 29. CD 11/2.

▲† **R. B. Tyler Co.,** 1446 Levering St., Louisville, Ky., and **Hyde Constr. Co.,** 1804 N. Mill St., Jackson, Miss., CA $3,191,577, primary runway, connecting taxiways, parking apron, stab. road shoulders, ENG-01-076-56-33, EGLIN AIR FORCE BASE, FLA. U. S. Eng., 201 Grant St., Mobile 7, Ala. Bids Nov. 22. CD 11/15.

† **Rainer & Cambron, Inc.,** P.O. Box 6546, Orlando, Fla., CA, $132,465, receiver and transmitter facilities, Pinecastle Air Force Base, IFB-08-617-55-31, ORLANDO, FLA. Purch. & Contg. Office, Pinecastle Air Force Base, Orlando, Fla. CD 9/16.

† **Hewitt Contg. Co.,** 1509 3 Ave., Columbus, Ga., LB, $886,067 (6 bidders) runway and taxiway, Craig Air Force Base, SELMA, ALA. U. S. Eng., 2301 Grant St., Mobile 7, Ala. Bids Nov. 29. CD 11/10.

▲ LOUISIANA—Mississippi River Bridge Auth., 422 City Hall Annex, New Orleans,

La.—**Boh Brothers Constr. Co.,** 2400 Cypress St., New Orleans, La. LB $1,090,914. Contr. 5 superstructure of deck truss spans for Greater New Orleans Bridge over Mississippi River;

La.—**Bethlehem Steel Co.,** Candler Bldg., Atlanta, Ga. LB $3,995,772. Contr. 6, superstructure of deck truss spans for Great New Orleans Bridge over Mississippi River. Bids Nov. 30. CD 11/10.

† **Breslin Constr. Co.,** 1433 S. Preston St., Louisville 17, Ky. CA $668,559. hardstand and perimeter road at Campbell Air Force Base, FORT CAMPBELL, KY. U. S. Eng., 306 Federal Office Bldg., Nashville, Tenn. Bids Oct. 21, awarded Oct. 25. CD 11/11, under LB.

E. S. Knepfle Sons, 520 E. Riverside St., Newport, Ky. CA $120,000. concrete streets, sewers, water lines in new section off Highland Ave., FORT THOMAS, KY. Fehler & Feinauer, Deshler Lane, Fort Thomas, Ky. Morlidge & Morlidge, 104 W. Fourth St., Cincinnati, O., engrs. Awarded Nov. 21.

Coleman Trainor & Co., 421 11 St., Huntington, W. Va. LB $379,000. water treatment plant, Bethany Lane, LOUISVILLE, KY. Louisville Extension Water Dist., Valley Station, Ky., Bids Nov. 29, CD 11/2;
Louisville Asphalt Co., 240 E. Lee St., Louisville, Ky., LB $44,000. pipe lines (Louisville, Ky.).

▲ **Robert Simmons Constr. Co.,** 840 Barrett Ave., Louisville 4, Ky. LB $3,506,000, est. $3,350,000. (9 bidders) Contr. A, incinerator, refuse bldg., site imprvs., Proj. 5621, LOUISVILLE, KY. City, Metropolitan Sewer Dist., 414 W. Jefferson St., Louisville, Ky. Bids Dec. 30. CD 11/22.

BUILDINGS—LB & CA

Hargett Constr. Co., 113 Walton Ave., Lexington, Ky. LB $540,000. ADMISSION and TREATMENT BLDG., Eastern State Hospital, LEXINGTON, KY. State, Div. Purchases, Frankfort, Ky. Bids Nov. 29. CD 11/2.

Hargett Constr. Co., 113 Walton Ave., Lexington, Ky. LB $588,000. (5 bidders) PHARMACY at University of Ky., LEXINGTON, KY. State, Div. Purchases, Frankfort, Ky. Bids Dec. 1. CD 11/17.

Harris & Wood, Danville, Ky. LB $454,000. (2 bidders) MUSIC BLDG., Eastern State College, RICHMOND, KY. State, Div. Purchases, Frankfort, Ky. Bids Dec. 1. CD 11/17.

Johnson & Galyon, 2831 Broadway N.E., Knoxville, Tenn., LB $781,850, COLLEGE OF EDUCATION BLDG., University of Tennessee, KNOXVILLE, TENN. University of Tennessee, Knoxville, Tenn. CD 6/25/53.

MIDDLE WEST

BUILDINGS—BA

Ind. West Lafayette—DORMITORY—BA 12/20—Kappa Alpha Theta Home Assn. Inc., West Lafayette, masonry, concrete wood dormitory (Chapter House) $350,000. Lennox & Matthews & Assocs., Inc., 644 E. 38 St., Indianapolis, archt.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,

O.—**C. F. Replogle Co.,** 122 N. Court St., Box 308, Circleville, O. LB $3,161,717, est. $3,429,500. (5 bidders) Type T 71 and structures 6.37 mi., U.SR 23-7.26, F 460 (6), city of Circleville, Pickaway Co.;

O.—**A. J. Baltes, Inc.,** 11 Olive St., Norwalk, O. LB $1,564,816, est. $1,703,700. (6 bidders) Type T-71 and structures 5.98 mi., USR 21-5-90, village of Byesville, Guernsey Co.;

O.—**W. L. Johnson Constr. Co. & Assoc.,** P. O. Box 6668, Bexley Station, Columbus, O. LB $150,122. est. $164,900. (4 bidders) Type T-35 on B-119 1.821 mi. S.R. 655-18.36, O-RD-15 (1), Franklin Co.;

O.—**A. J. Ronyak, Inc.,** Box 277, Burton, O. LB $75,277, est. $77,700. (1 bidder) Type T-35, 2.952 mi., SR 87-(13.60-14.46), Geauga Co. Bids Nov. 29.

Chas. F. McCurdy, Inc., 906 Main St., Cincinnati, O. LB $456,279, est. $500,000. (2 bidders) storm trunk sewer line for Sycamore Twp., CINCINNATI, O. Comrs. Hamilton Co., Court House, Cincinnati, O. Geo. M. Lemmel, co. engr. CD 11/5/54.

Theodore Buesching Constr. Co., 1001 E. Berry St., Fort Wayne, Ind. CA $120,000. bldg. addn. and pump house, at Waterville Swanton Rd. between Chicago Pike and Reed Rd., Swanton Twp., SWANTON, O. Village, Swanton, O. CD 11/8/54.

▲ **Great Lakes Dredge & Dock Co.,** 740 N. Plankington Ave., Milwaukee 2, Wis., CA, $1,078,932. bridge over Kinnickinnic River, at S. 1 St., MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids Oct. 19, awarded Nov. 30. CD 10/24, under LB.

BUILDINGS—LB & CA

Superior Constr. Co., 958 Taylor Ave., Columbus, O. CA thirty-seven 1 story frame DWELLINGS Eastmoor Blvd., Kingsbury Place, E. Mound St., Brookside Dr., Darfield Place, and Weyant Ave., COLUMBUS, O. Total est. $500,000. E. G. Fritsche, 897 Eastmoor Blvd., Columbus, O.;
Capital Homes, Inc., 897 Eastmoor Blvd., Columbus, O. CA five 1 story frame DWELLINGS. (Columbus, O.).

Frank Messer & Sons, Inc., 4612 Paddock Rd., Cincinnati, O. CA $455,220. general contract WOMEN'S RESIDENTIAL HALL No. 3, Miami University, OXFORD, O. State, Dir. P. Wks., State Office Bldg., Columbus, O. Bids Oct. 18, awarded Nov. 21. CD 9/23, under LB.

Thos. L. Hickey, Inc., 712 N. Niles St., South Bend, Ind., CA, Est. $265,000. FACTORY addn., SOUTH BEND, IND. Roach-Appleton Mfg. Co., 3902 W. Sample St., South Bend, Ind. Bids Oct. 19, awarded Nov. 10. CD 10/19.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Minn., Minneapolis**—PAVING FACILITIES—BA 12/28—U. S. Eng., 1217 U. S. Post Office & Custom House, 180 E. Kellog Blvd., St. Paul, Zone 1, paving facilities Minneapolis-St. Paul International Airport, ENG-21-018-56-5. CD 11/29.

† **Wyoming**—PUMPING UNITS, etc.—BA 1/10—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., Sch. 1, Item 1, pumping units; Sch. 2, Item 2, two water pumping units; Item 3, two water pumping units; Sch. 3, Item 4, pumping unit for Glendo Power Plant, Glendo Unit, Spec. DS 4575. CD 7/30/45, under Earthwork, etc.

† **Mo., Sedalia**—WAREHOUSE—BA On Or About 1/12—U. S. Eng., 1800 Federal Office Bldg., 911 Walnut St., Kansas City 6, Mo., Group M bidgs., incl. warehouse, base, bulk supply, Whiteman (formerly Sedalia) Air Force Base, Knob Foster, Johnson Co., ENG-23-028-56-45. CD 9/12.

† **Tex., Randolph Fied**—DORMITORIES—BA 1/12—U. S. Eng., P. O. Box 1229, Galveston, constr. three 133-man, 2 story, masonry with concrete frame airmens dormitories, Randolph Air Force Base, ENG-41-243-56-19. $500,000-$1,000,000. CD 10/31.

BUILDINGS—BA

Tex., Dallas—WAREHOUSE—BA 12/30—Minnesota Mining & Mfg. Co., 1220 Dragon St., 114x294 ft., brick, concrete-steel warehouse. $400,000. Extended date. George L. Dahl, 2101 N. St. Paul St., engr.-archt. CD 11/18.

BUILDINGS—SLC

▲ **Tex., Dallas**—OFFICE—Dallas Federal Savings & Loan Assn., c/o E. E. Shelton, Magnolia Bldg., soon lets contract 16 story, sub-bsmnt., bsmnt., 96x99 ft., brick, limestone, concrete and structural steel office. $3,000,000. George L. Dahl, 2101 N. St. Paul St., archt.-engr. CD 11/15/54.

HEAVY CONSTRUCTION—LB & CA

▲ **IOWA**—State Hy. Comn., Ames,

Iowa—Booth & Olson, Inc., 529 Insurance Exchange Bldg., Sioux City, Iowa., LB, $130,369. c. conc. 1.892 mi. FN-909, Linn Co.; LB $148,557, c. conc. 1.376 mi. Special F-1014 (6), Linn Co.; LB $206,-068, c. conc. wid'n. 11.67 mi. Widen FN-228, Harrison Co.; LB $191,189, c. conc. pavement wid'n., 10.901, Wid'n. FN-184, Monona Co.;

Iowa—W. Hodgman & Sons, Inc., Fairmont, Minn., LB, $227,915. b. conc. 10.754 mi. Special F-828 (3), Fayette and Winneshiek Counties;

Iowa—Lee & Johnson, Inc., 215 Insurance Exchange Bldg., Sioux City, LB, $512,305. b. conc. 13.379 mi. Special F-994 (1), Monona Co.;

Iowa—E. M. Duesenberg, Inc., Clear Lake, Iowa, LB, $183,779, c. conc. wid'n. 6.876 mi. FN-115, Cerro Gordo Co.; LB $439,609, c. conc. wid'n. 10.136 mi. FN-212, Franklin Co.;

Iowa—Central Eng. Co., 2531 Rockingham Rd., Davenport, Iowa, LB, $110,252, c. conc. wid'n. 5.858 mi. Wid'n. P-1076 Clinton and Scott Counties;

Iowa—Cameron, Joyce & Co., Keokuk, Iowa, LB, $187,-328 c. conc. wid'n. 10.122 mi. Wid'n. FN-67 (1), Hamilton Co.; LB $200,934 c. conc. wid'n. 10.902 mi. wid'n. FN-67 (2), Hardin Co.;

Iowa—Jackson Constr. Co., Inc., Emmetsburg, Iowa, LB, $240,613. c. conc. wid'n. 13.275 mi. Wid'n. P-1025 (2) Hardin Co.; LB $234,203. c. conc. wid'n. 13.61 mi. wid'n. P-1025 (1), Story Co.;

Iowa—Slade Constr. Co., Fairmont, Minn., LB,$156,235 c. conc. pavement wid'n. 9.474 mi. Wid'n. FN-214, Harrison Co.; LB $166,658 c. conc. wid'n. 7.468 mi. Wid'n. FN-333, Sac Co.;

Iowa—R. P. Devine, Watseka, Ill., LB, $210,212 c. conc. wid'n. 10.894 mi. Wid'n. FN-802, Monroe Co. Bids Nov. 29. CD 11/23.

Geo. L. Cousins Contg. Co., 875 Skinker Blvd., St. Louis 5, Mo. LB $475,780, est. $700,000. 1 story, 203x168 ft. elephant house for St. Louis Zoo in Forest Park Zoological Gardens, ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market Sts., St. Louis 3, Mo. Bids Nov. 29. CD 10/31.

R. A. Reither & R. A. Waffensmith, Commonwealth Bldg., Denver, Colo., CA $703,987, 1,274.14 mi. telephone lines, Burleigh, Kidder, Logan and Emmons Counties, NORTH DAKOTA. B E K Mutual Aid Corp., Steele, N. D. Bids Nov. 8. CD 11/22, under LB.

† **Lipsett, Inc.**, 99 Park Ave., New York, N. Y. LB $783,379, est. $770,648, stringing conductors and overhead ground wires for 74.5 mi. of Watertown-Granite Falls and 2.6 mi. of Granite Falls-Northern States Power Co. 230-kv transmission lines, footings and steel towers, Missouri River Basin Proj. Spec. DC 4543, SOUTH DAKOTA-MINNESOTA. Bureau Reclamation, Dpt. Interior, Huron, S. D. Bids Nov. 29. CD 10/18.

† **Peter Kiewit & Sons Co.**, 1024 Omaha National Bank Bldg., Omaha, Neb. LB $492,569, est. $482,-408. airfield pavement, Sect. IV, N-S runway, Smoky Hill Air Force Base, ENG-56-37, SALINA, KAN. U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo. Bids Nov. 29. CD 11/7.

▲ **Martin K. Eby Constr. Co.**, 610 N. Main St., Wichita, Kan. CA $2,829,860. ramp addns., pneumatic compressor installation, WICHITA, KAN. Boeing Airplane Co., Plant No. II, Personnel Bldg., Wichita, Kan. Bids Nov. 18, awarded Nov. 21. CD 12/2, under LB.

▲ **OKLAHOMA**—Oklahoma Turnpike Auth., 321 N. E. 24 St., Oklahoma City,

OTA—E. E. Barber Co., Inc., 722 Wheeler St., Fort Smith, Ark., CA $497,880, est. $498,600, Contr. 149, two bridge structures, grade and drain 0.179 mi. at Afton, Craig Co.;

OTA—Southern Constr. Co., 1405 West Reno St., Oklahoma City, Okla., CA $459,585, est. $461,200, Contr. 148, two bridge structures, grade 0.45 mi. at Afton, Ottawa Co.;

OTA—Brewer & McMichael, Inc., Holdenville, Okla. CA $287,358, est. $287,210. Contr. 150, seven bridge structures, at Big Cabin, Mayes and Rogers Counties. Grand total $1,244,823. DeLeuw Cather & Co., 321 N. E. 24 St., Oklahoma City, engrs. Bids Nov. 29. Awarded Nov. 30.

OKLAHOMA—Oklahoma Turnpike Auth., 321 N. E. 24 St., Oklahoma City, Zone 5,

J. W. Moorman & Sons, P. O. Box 1509, Muskogee, Okla. CA $518,182, est. $531,268. Contr. No. 139, grading, drainage 2.654 mi. at Vinita Interchange, Vinita. Bids Nov. 29, awarded Nov. 30. CD 11/10.

▲ **TEXAS**—State Hy. Comn., Austin,

Thomas J. Evans Jr. & M. M. Pettyjohn, P. O. Box 478, South Houston, Tex., CA $2,715,180. 0.639 mi. Buffalo Bayou Bridge, Hy. US 59, Proj. U514 (18), Harris Co. Bids Nov. 23, awarded Dec. 1. CD 11/18, under LB.

† **E. H. Reeder Constr. Co.**, 2128 Hawes St., Dallas, Tex., LB $746,006. Part V, Turtle Creek Pressure Sewer Proj., Dallas, Dallas Co., CIVENG-41-443-56-9, TEXAS. U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Tex. Bids Nov. 30.

▲† **McKenzie Constr. Co.**, Box 806, San Antonio, Tex. LB $1,496,000. runway, taxiways, etc. Chase Field Naval Auxiliary Air Station, NOY 86371, Spec. 45583, BEEVILLE, TEX. Officer in Charge of Constr., Administration Bldg. No. 1, Naval Air Station, Corpus Christi, Tex. Bids Dec. 1. CD 10/25.

COLORADO—State Hy. Dpt., 4201 E. Arkansas St., Denver,

Henry Shore Constr. Co., 510 S. Windemere St., Littleton, Colo., CA, $450,927, est. $390,000, 9 major structures on State Hy. No. 1, Colorado Springs, FI 002-2 (32), El Paso Co. Bids Nov. 29. CD 11/23.

BUILDINGS—LB & CA

▲ **Adolfson & Peterson**, 2017 Bryant Ave. S., Minneapolis, Minn. CA $1,000,000. SHOPPING CENTER, incl. 25 stores in Anoka County at Hy. 10 and University Ave. N.E., ANOKA, MINN. Northtown, Inc., G. Peterson, 2817 Bryant Ave. S., Minneapolis, Minn. Patch & Rickson, 333 Minnetonka Ave. S., Wayzata, Minn., archts.

Paschen Contractors, Inc., 2739 N. Elston St., Chicago, Ill. CA Est. $500,000. general contract 2 story, 156x244 ft. HEADQUARTERS BLDG. on north side of Wayzata Blvd. between Upton Ave. S. and T., Wirth Park, MINNEAPOLIS, MINN. Standard Oil Co., H. J. Hilliard, div. mgr., 1300 Harmon Place, Minneapolis, Minn. Bids Nov. 28. CD 11/17.

Floyd W. Richards, Box 532, Amarillo, Tex., CA $694,-932, two elementary SCHOOLS, AMARILLO, TEX. Amarillo Independent School Dist., Amarillo, Tex. Bids Nov. 22. CD 11/10.

▲ **D. E. Lunt**, 819 Bowman St., Irving, Tex. Purchase and Hire. $359,605, 30 DWELLINGS; $355,000, 28 DWELLINGS; $366,410, 32 DWELLINGS, CARROLLTON, TEX. Grand total $1,081,015. CD 10/20.

▲ **George A. Fuller Co.**, Gibraltar Life Bldg., Dallas Tex., LB $1,858,206. CLINIC SCIENCE BLDG., DALLAS, TEX. Southwestern Medical School, University of Texas, Main Bldg. 104, Austin, Tex. Bids Nov. 29. CD 11/7.

The Cato Corp., c/o Grady Cates, 9747 Harry Hines Blvd., Dallas, Tex. Own Forces. $450,000. SHOPPING CENTER UNITS, FARMERS BRANCH, TEX. CD 1/26/55.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Wash., Tacoma**—COMMISSARY FOOD SALES—BA 12/27—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 78x150 ft., masonry commissary food sales bldg., McChord Air Force Base, ENG-45-108-56-92.

† **Wash., Tacoma**—BUILDING ADDNS.—BA 12/29—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, two 8,060 sq. ft. rein.-con. building addns., for rocket storage, check-out and assembly, McChord Air Force Base, ENG-45-108-56-95.

Utah, Ogden—BA 1/6—Weber Basin Conservancy Dist., E. J. Fjeldsted, mgr.-secy., 506 Kiesel Bldg., Water Purification Plant No. 3. $500,000. Plans deposit $50. Extended date. Templeton & Linke, 500 Dooly Bldg., Salt Lake City, engrs. CD 11/22.

Utah, Ogden—BA 1/12—Weber Basin Conservancy Dist., E. J. Fjeldsted, mgr.-secy., 506 Kiesel Bldg., Water Purification Plant No. 2. $500,000. Plans deposit $50. Extended date. Templeton & Linke, 500 Dooly Bldg., Salt Lake City, engrs. CD 11/22.

Utah, Ogden—B9 1/12—Weber Basin Conservancy Dist., E. J. Fjeldsted, mgr.-secy., 506 Kiesel Bldg., Water Purification Plant No. 4. $500,000. Plans deposit $50. Templeton & Linke, 500 Dooly Bldg., Salt Lake City, engrs. CD 6/24/54.

HEAVY CONSTRUCTION—LB & CA

▲ **WASHINGTON**—State Hy. Comn., Olympia,

Wash.—C and E Constr. Co., Yakima, Wash., LB, $252,-536 (6 bidders), surf. b. conc. paving, T-beam bridge and lighting, 1.408 mi. Primary State Hy. 8, Benton Co.;

Wash.—Goodfellow Brothers, Wenatchee, Wash., LB, $230,849 (10 bidders) bit. surf., rein.-con. T-beam bridge over C. M. St. P. and P. R.R. tracks, 1.009 mi. Adams Co.;

Wash.—R. A. Heintz Constr. Co., 211 N.E. Columbia Blvd., Portland, Ore., LB, $755,000 (22 bidders) crushed stone surf. 6003 mi. Primary State Hy. 8, Klickitat Co.;

Wash.—H. H. Hawkins, 16274 39 Ave. N.E., Seattle, Wash., LB, $131,696 (7 bidders) Cavalero's Corner Traffic Interchange 0.17 mi. Primary State Hy. 15. Snohomish Co. Bids Nov. 29. CD 11/15.

▲† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho, CA, $1,869,580, est. $1,903,200 80x200x32 ft., and 120x134x36 ft., rein.-con. steel pumping plants addn. three 20x40x12 ft. offices addns., etc. Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Richland, Wash. Bids Nov. 22. (Correction-contractors address). CD 11/29, under LB.

▲† **Gunther & Shirley Co.**, P. O. Box 1037, Sherman Oaks, Calif. and **E. V. Lane Corp.**, 2675 Park Blvd., P. O. Box 417, Palo Alto, Calif. LB $3,195,782, est. $4,149,875. (6 bidders) powerhouse equipment, The Dalles Dam, Wasco Co., CIVENG-35-026-56-60. OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Dec. 1. CD 10/7.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

Peter Kiewit Sons Co., 442 Post St., San Francisco, Calif., LB, $4,661,462, est. $5,081,000 (11 bidders) parallel Carquinez Bridge approach and Crockett Interchange, Contra Costa Co. Bids Dec. 1. CD 10/14.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

E. C. Young Service Constr. & Young & Arrieta, Box 536, Sun Valley, Calif., LB, $1,749,718 est. $1,800,-000 4-lane freeway, frontage roads, interchanges and 4 bridges in La Mesa, San Diego Co. Bids Dec. 2. CD 11/4.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Ukropina, Polich, Steve Kral & John R. Ukropina, P. O. Box 105, San Gabriel, Calif., CA, $3,188,422, two 46 ft. roadbeds to provide 6-lane divided freeway for 3.4 mi. between 0.3 mi. south of Southern Ave. and Atlantic Blvd., invl. ramps, frontage roads, connections with 3 overcrossing South Gate, Los Angeles Co. Bids Nov. 17, awarded Nov. 30. CD 11/23, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

Calif.—W. H. O'Hair Co., 1112 Main St., Colusa, Calif., LB, $178,068 (14 bidders) wid'n. 5.8 mi. Butte-City Chico Rd., F. A. S. County Rte. 1231, rein.-con. slab bridge across Edgar Slough, wid'n. bridge at Edgar Slough, Butte Co. CD 11/41;

Calif.—A. Teichert & Son, Inc., 1931 Stockton Blvd., Sacramento, Calif., LB, $938,574, (5 bidders) grading, paving 3 mi. U. S. 99, welded plate girder bridge to provide 4-lane divided hy. between Kingsley and Mariposa Rd., San Joaquin Co. Bids Nov. 30. CD 11/4.

▲ **The Arundel Corp. & L. E. Dixon Co.**, 409 S. California St., San Gabriel, Calif., CA, $8,291,698, dam and power plant (Tulloch Dam and Goodwin Dam) Tuolumne Co., CALIFORNIA. Oakdale Irrigation Dist. & South San Joaquin Irrigation Dist., 322 E. "D" St., Oakdale, Calif. Bids Oct. 25. CD 10/28, under LB.

† **Allan Assoc., Inc.**, 618 S. Orange Dr., Los Angeles, Calif., CA $911,472, est. $1,000,000. (7 bidders) tactical and administrative facilities, AAA sites, LA-98-C and LA-98-L, Los Angeles Co., ENG-04-353-56-38, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 29. CD 11/9.

E. A. Irish, 2944 Gleneden St., Los Angeles, Calif., LB $427,534, est. $500,000. (6 bidders) Proj. 107, Branford St. channel and Cantara St. storm drain, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Nov. 25. CD 11/1.

† **James Stewart Co.**, 411 N. Central Ave., Phoenix, Ariz., CA $488,120 est. $500,000 (11 bidders) laboratory, research, combination facilities, Edwards Air Force Base, ENG-04-353-56-52, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 29. CD 11/15.

BUILDINGS—LB & CA

Gilbert & Dolan Enterprises, Inc., 2639 N. Central St., Phoenix, Ariz., LB $438,956, 1 story brick SCHOOL, PHOENIX, ARIZ., Phoenix Elementary School Sys., 3010 N. 11 Ave., Phoenix, Ariz. Bids Dec. 1. Lescher & Mahoney, Title & Trust Bldg., Phoenix, archts.

Morrill Co., Wenatchee, Wash., CA, b. conc. paving at aluminum reduction PLANT in connection with potline expansion, WENATCHEE, WASH. Aluminum Company of America, Alcoa Bldg., Pittsburgh, Pa.;
Cuscik Constr. Co., Wenatchee, Wash., CA, lunchroom bldg. (Wenatchee, Wash.).

McDonald Bros., 6060 W. Adams Blvd., Los Angeles, Calif., Owner Builds, $800,100. 72 frame, stucco DWELLINGS, Bender Ave., Valley Blvd., etc., COVINA, CALIF. E. H. Fickett, 5657 Wilshire Blvd., Los Angeles, Calif., archt.

CANADA

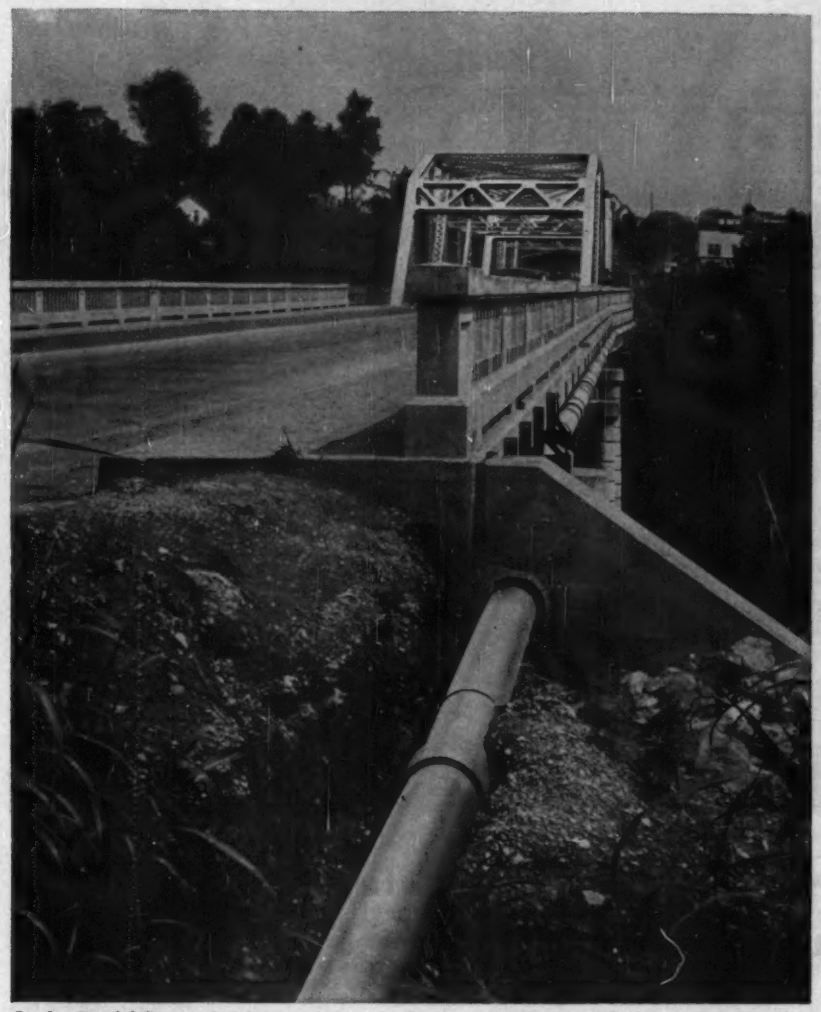
BUILDINGS—BA

▲ **Ont., Oakville**—HIGH SCHOOL—BA 12/20—Oakville & Trafalgar Twp. High School Bd., 135 Church St., 2 story, high school. $1,100,000. Plans deposit $50. Shore & Moffat, 79 Queen St. E., Toronto, archts. CD 11/9.

Que., Montreal—SCHOOL—BA 12/20—Montreal Catholic School Comn., 117 St. Catherine St. W., 2 story, bsmnt. Immaculate Heart of Mary School. $400,000. Paul M. Lemieux, 1846 Dorchester St. W., engr.

▲ **Que., Montreal**—PLANT, OFFICES—Bids Asked—Consolidated Lithograph Mfg. Co., 1800 Parthenais St., 1 story, 165,000 sq. ft., steel, masonry plant and offices, Hodge Ave. $1,000,000. Julien C. Van Huyse, 195 Fairbank Ave., Toronto, Ont., archt. CD 11/14.

(Continued on page 87)



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NEW CHEVROLET Task-Force TRUCKS

(Continued from page 84)

HEAVY CONSTRUCTION—LB & CA

Rayner-Atlas Ltd., 2293—A Yonge St., Toronto, Ont., CA, $919,429, 3,753 ft. concrete sewer, 10 ft. inside diam. North York, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Nov. 17, awarded Nov. 30. CD 11/29, under LB.

BUILDINGS—LB & CA

Rocco D. Magaletta, 304 Christina St. N., Sarnia, Ont., Owner Builds, $900,000, LUXURY MOTEL, SERVICE STATION, DINING ROOM and drive-in theater, corner Hys. No. 7 and 21, REECE'S CORNER, ONT.

▲ Louis Donolo, Inc., 8320 St. Lawrence Blvd., Montreal, Que., CA, $1,300,000. superstructure of 12 story, 100x100 ft. OFFICE BLDG., Peel St., MONTREAL, QUE. Fremor Investments Ltd., c/o Greenspoon, Freedlander & Dunne, archts., 4151 Sherbrooke St. W., Montreal, Que. Bids Nov. 7, awarded Nov. 28. CD 10/31.

ALASKA

HEAVY CONSTRUCTION—LB & CA

▲† Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, CA $3,909,111, est. $3,324,549, 7 airmen's dormitory bldg. addn. to base rocket-storage bldg., steam tie line and rehabilitate 2 bldgs., Elmendorf Air Force Base, Inv. 56-2, ALASKA. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Nov. 23. CD 12/2 under LB.

PUERTO RICO

HEAVY CONSTRUCTION—LB & CA

▲ Raymond Concrete Pile Co. of Puerto Rico, P. O. Box 486, San Juan, Puerto Rico, CA $3,515,770. Puerto Nuevo Sewage Treatment Plant, PUERTO RICO. Puerto Rico Aqueduct & Sewer Auth., Santurce, Puerto Rico. Bids Oct. 3. CD 8/12.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

† Panama—Bureau P. Rds., Dpt. Commerce, 18 and F Sts., N. W. Wash. 25, D. C.,
Framcroc S. A., Panama, LB $387,586. Inter-American Hy. Program. Proj. S (11), approx. 10 mi. paving between Anton and Penonome. Bids Nov. 18. CD 10/19.

▲ Siemens Schukertwirke, Siemens Bauunion, Phillip Holzman and Grun & Bilfinger, LB $26,176,364. Total est. $40,500,000. (16 bidders) civil engineering works, turbines, gates and cranes, electrical equip. on the Baygorria Hydro Electric Power Plant on Rio Negro, URUGUAY. Administracion General de Las Usinas Electricas y Los Telefonos, Del Estado, Montevideo, Uruguay. CD 5/25/54.

PROPOSED PROJECTS

WATER SUPPLY

▲ Ill., Lake Forest—City, City Hall, pumping station water mains, $1,650,000. Greeley & Hanson, 220 S. State St., Chicago, Zone 4, consult. engrs.

▲ Mich., Jackson—Water Auth., Twps. of Leoni, Summit and Blackman, water distr. sys. $3,615,000. CD 11/17/53.

▲ O., Cleveland—City, Div. Water & Heat, Frank J. Schwemler, comr., City Hall, Zone 14, constr. combined administration, chemical and filtering bldg. at Clague Rd. Pumping Station, $3,500,000; 24 in. water main in Sprague and Avery Rds., $1,550,000; 54 in. water main in Calgue Rd., $550,000; water main in Brainard Rd., $325,000; water main in Ridge Rd., $270,000; Havens & Emerson, 640 Leader Bldg., Zone 14, consult. engrs. CD 1/27/54.

▲ Okla., Vinita—City, voted bonds Nov. 22, WW extens. $1,152,000. Lee M. Bush & Co., Colcord Bldg., Oklahoma City, consult. engrs. Bids in March. CD 11/9.

▲ Tex., Dallas—City, City Hall, Main and Harwood Sts., water pumping station, $2,500,000; water purification plant (at the reservoir), $2,250,000; 45 mi. water conduit line from reservoir, 45 mi. east of Dallas to city limits of Dallas, $4,000,000, foregoing near Van, Van Zandt and Rains Counties, at Iron Bridge Reservoir, Sabine River. CD 3/23/54.

SEWERS, WASTE DISPOSAL

▲ Mont., Great Falls—City, City Hall, city-wide storm and interceptor sewer proj., incl. sanitary interceptor sewer, sanitary sewer, six trunk storm sewers, subtrunk storm sewers, $2,285,000. Harold Hoskins & Assoc., Inc., 1630 Q St., Lincoln, Neb., consult. engr. CD 4/12.

▲ Wash., Seattle—City, County-City Bldg., election on Mar. 13 on sewer charge to finance, interceptor sewer from foot of Denny Way and from Magnolia outfalls to North Trunk sewer, with pumping station, $1,500,000; Alki Point treatment plant, $740,000; Barton St. to Alki Point interceptor sewer, $940,000; Fairmount Ave. to 53 Ave. S.W. pumping plant, $300,000; beach area interceptor $75,000; Lake City treatment plant, $925,000; Seaview Ave. outfalls interceptor, $165,000; Blue Ridge outfall connections to Greenwood Ave. treatment plant, $20,000; sanitary sewers in area between Fremont and Meridian Ave. N. 85 and 90 Sts. $374,000; storm sewers south of N. 85 St. in same area, $86,000; W. Jersey St. and Arkansas St. outfall interception and pumping plant, $95,000; California Pl. outfall interception and pumping plant, $63,000. W. E. Parker, city engr. CD 8/16/54.

BRIDGES

▲ OREGON-WASHINGTON—State Hy. Dpt., Salem, Ore., and Wash. State Hy. Comn., Olympia, Wash., Multnomah Co., Ore. and Clark Co. Wash.—lift-span bridge across Columbia River between Portland, Ore., and Vancouver, Wash., paralleling present bridge. $12,000,000. Bids in March. R. H. Baldock, Oregon by engr.; W. A. Bugge, Wash. hy. dir. CD 12/5/52.

▲ TEXAS—State Hy. Dpt., Austin,
Nueces Co.—Corpus Christi Channel Bridge, Hy. 181. F 204 (6), bridge will be constructed in 4 sections. Bids soon on Sect. 1, prestressed concrete girder spans and substructure bents support same, minor approach grading. $8,000,000-$9,000,000. CD 3/30, under Tex., Corpus Christi.

▲ Ontario—St. Lawrence Seaway Auth. No. 2 Temporary Bldg., Ottawa, Ont. and St. Lawrence Seaway Development Corp., The Pentagon, Wash. 25, D. C., U. S. A., high level bridge project to replace south section of Roosevelt Bridge between Cornwall, Ont. and Roosevelt, N. Y., part of St. Lawrence Seaway Proj. $3,000,000-$5,000,000. Bids late January. A. Gordon Murphy, c/o St. Lawrence Seaway Auth., Ottawa, Ont., ch. engr. and U. S. Eng., Engineer Park, Buffalo 7, N. Y., U. S. A., staff engrs.

▲ Que., Verdun—National Harbor Bd., Hunter Bldg., Ottawa, Ont., toll bridge to connect Verdun with Nuns Island and point on south shore of St. Lawrence River, $25,000,000. Dr. P. L. Pratley, 1117 St. Catherine St. W., Montreal, consult. engr. CD 4/1.

STREETS AND ROADS

▲ Mo., St. Louis County—St. Louis Co., Luman F. Matthews, co. superv., Court House, Clayton, voted bonds Nov. 22, opening, and constr. of Innerbelt Hy., $16,100,000; supplementary roads, bridges, grade crossing projs., $9,836,839. CD 10/7.

EARTHWORK, WATERWAYS

▲ North Dakota—State Water Conservation Comn., Bismarck, making survey dam on Pembina River near Walhalla. $5,000,000.

▲ Pennsylvania—State Dpt. Forests & Water, Education Bldg., Harrisburg, constr. 9 flood control reservoirs on Juniata River in Central Pennsylvania, $32,000,000. No funds appropriated. Thomas H. Matthews, c/o owner, ch. engr.

▲† Tennessee—U. S. Eng., 306 Federal Office Bldg., Nashville, construction work in connection with completion of Cheatham Hydroelectric Power Plant, at Mile 148.7 on Cumberland River, or approx. 23 mi. upstream from City of Clarksville, to involve mixing and placement of approx. 21,200 cu. yd. concrete, placement of approx. 2,100,000 lb. reinforcement steel, constr. powerhouse super-structure, install machinery and equip., const. switchyard and service roads, install microwave radio tower, removal of cofferdam, etc. Principal items of Govt. furnished equip. to be installed are the three 20,000 h.p. hydraulic turbines, governors, main power transformers, powerhouse crane, intake and draft tube gantry cranes and all accessory electrical equip. the three 12,000 kilowatt generators will be installed by the generator mfr. under a separate contract, CIVENG-40-058-56-26. Est. $6,360,000. CD 8/19.

▲ Texas—Lufkin-Nacogdoches Water Imprvt. Dist. No. 1, c/o H. J. Shands, Lufkin, bond election Jan. 10, dam and reservoir on Stryker Creek, near New Salem, to supply domestic and industrial water for towns of Lufkin, Nacogdoches and Henderson. $2,400,000. CD 11/21.

AIRPORTS

▲ N. J., Newark—TAXIWAY, etc.—Port of New York Auth., 111 85th Ave., New York 11, N. Y., 4,400 ft. 75 ft. wide taxiway, 16 paved aircraft parking positions, paved warm-up area, and dual power supply for surveillance radar equipment, Newark Airport, $1,443,440. CD 6/6/49.

▲ N. Y., Jackson Heights—DRAINAGE SYSTEM—Port of New York Auth., 111 Eighth Ave., New York, Zone 11, imprv. drainage system, incl. 4 pump houses, drains and bulkheads, raising perimeter dike to 15 ft. at LaGuardia Airport, $1,033,900. Work will begin in 1956.

▲ O., Dayton—TERMINAL—City, Herbert W. Starick, mgr., Cox Municipal Airport, incl. terminal, $1,350,000; aprons, $1,000,000; utilities, access roads, parking, $500,000. Leigh Fisher & Assoc., 225½ Riverside Dr., South Bend, Ind., consult. engrs. for preliminary plans. CD 8/11/54.

▲ Que., Windsor Mills—AIRPORT FACILITIES—Dpt. Transport, Hunter Bldg., Ottawa, Ont., facilities exten., Windsor Mills Airport. $1,500,000.

LATIN AMERICA

▲ Cuba, Santiago—Texas Co., 720 San Jacinto St., Houston, Tex. U. S. A. plans 20,000 bbl. daily capacity refinery. $14,000,000.

▲ Mexico, Begona—Srla. de Recursos Hidraulicos, Reforma, 69, Mexico City, plans irrigation dam. $1,500,000.

▲ Peru—Supreme Decree the Ministry of Development & P. Wks., Lima, plans double-lane hy., replacing present single-lane hy. between underpass "trebol del Pino" outskirts of Lima and Kilometer 42 in Chosica, in Rimac River Valley, over $1,000,000.

PUBLIC BUILDINGS

▲ Calif., Newport Beach—HIGH SCHOOL—Newport Beach Union High School Dist., Newport Beach, plans by Lind, Pleger, Blurock & Hougan, 1415 Coast Hy., Corona del Mar, high school, $4,000,000.

▲ Colo., Fort Collins—ENGINEERING, etc.—Colorado A & M College, Fort Collins, engineering and physics bldg., $1,625,000; brick, concrete mens' gymnasium $1,150,000; animal disease research center, over $344,000; animal science hall, $800,000, CD 11/28; 416-student, 3 story concrete frame mens' dormitory, incl. 5 bldgs., connected to central core which will house lounge, dining areas, kitchen and administration $1,200,000. James M. Hunter, 1126 Spruce St., Boulder, consult. engr.-archt. CD 7/2/53.

▲ Colo., Grand Junction—SCHOOL, HOSPITAL, ETC.—Colorado State Buildings, State Office Bldg., Denver combined school, auditorium and gymnasium, 30-bed hospital and two adjoining infirmary wards, four 60-patient wards, $1,778,000.

▲ Colo., Ridge—INFIRMARIES, etc.—State of Colorado, State Home & Training School, 2 infirmaries, 4 ward bldgs., 2 staff cottages, and employee's quarters to house 20. $1,060,000.

▲ Conn., Hamden—SCHOOL—State, T. J. Murphy Jr., comnr. P. Wks., State Office Bldg., Hartford, plans by Polack & Sullivan, 1397 Chapel St., New Haven, Whitney Technical School addn., $1,178,000.

▲ Conn., Stamford—SCHOOL—State Bd. Educ., State Office Bldg., Hartford, plans by Francis L. S. Mayers, 126 Bedford St., J. M. Wright Technical School $3,000,000. CD 8/4/54.

▲ Fla., Miami—HOSPITAL EXPANSION, etc.—Bd. Comrs., Dade Co. Court House, Miami, Jackson Memorial Hospital expansion facilities, 1000 N. W. 17 St. $10,000,000; Kendall Hospital and Homes imprvs., $1,500,000. Bond election next November.

▲ Ill., Chicago—SCHOOLS—Chicago Bd. Educ., 228 N. LaSalle St., Zone 1,
Attuck School, Pershing Rd. and State St. $1,500,000.
Beale School addn., 60 and Sangamon Sts., $1,000,000.
Beidler School addn., 3100 Walnut St., $1,000,000.
Carnegie School addn., 61 and Dorchester Sts., $800,000.
Cregier School addn., 1820 Grenshaw St., $350,000.
Dawes School addn., 3800 W. 81 St., $500,000.
present Dunbar Vocational School, 44 St. and St. Lawrence Ave., $900,000.
Farren School addn., 50 and Wabash Sts., $1,250,000. CD 3/30/45.
Hanson Park School to be converted to Vocational High School, 2148 N. Long Ave., $1,500,000.
Headley School, 2100 Magnolia St., $1,250,000.
Healy School addn., 600 W. 31 St., $750,000.
Jenner School addn., 1009 Cleveland Ave., $400,000.
Kinzie School, 56 and Mobile Sts., $1,000,000. CD 1/28/54.
Mason School, 1800 S. Keeler St., $1,000,000.
Raymond School addn., 36 and Wabash Sts., $850,000.
Taft High School addn., 5625 Natoma Ave., $1,500,000. CD 9/23/53.
elementary school, 33 and Wentworth Sts., $850,000. CD 3/30/45.
elementary school, 78 and Kostner Ave., $500,000.
primary grade school, 50 and Drexel Sts. $500,000.
primary school, 83 and Richmond Sts., $400,000.
primary school, 115 and Ada Sts., $400,000.
primary school, 1040 Jackson Blvd., $400,000.
primary school, Sacramento and Lunt Ave., $400,000.
primary school, Washington Blvd. and Levitt St., $1,000,000.
School for Socially Maladjusted, 46 and Princeton Sts., $600,000.
new school, at 31 and Cottage Grove Ave., $500,000.

▲ Ill., Chicago—HOUSING—Chicago Housing Auth., 608 S. Dearborn St., Zone 5, plans by Mielke & Smith, 53 W. Jackson St., Zone 4, 388-unit apartment bldgs. and row houses at Roosevelt Rd. and Blue Island, $4,000,000. CD 2/2/50.

▲ Md., Upper Marlboro—SCHOOL—Prince George's Co. Bd. Educ., plans by Walton & Maddon, 3510 Rhode Island Ave., Mount Ranier, Rollingcrest Junior High School, Sargent Rd., Hyattsville, $1,100,000. Bids late 1956.

▲ Mich., Ferndale—SCHOOL—City, Bd. Educ., 130 E. Nine Mile Rd., Zone 20, voted $6,500,000 bonds Nov. 21, Senior High School, Jahr & Anderson Assoc., Inc., 15011 Michigan Ave., Dearborn, archt. CD 10/31.

▲ Mich., Pontiac—COUNTY—Oakland Co., H. Lloyd Clawson, chn. Special Comn., plans by Harley, Ellington & Day, 153 E. Elizabeth St., Detroit, 10 story, county bldg. 340 acre site, West Blvd. $5,000,000. Bond election in 1956. CD 11/11/54.

▲ Mich., Warren—SCHOOL—Bd. Educ., Warren Consolidated School Dist., 5460 Arden St., voted $4,000,000 bonds Nov. 20, schools.

▲ Mo., St. Louis County—HOSPITAL—St. Louis County, Luman F. Matthews, co. super., Court House, Clayton, voted $1,500,000 bonds Nov. 22, county hospital and health center bldgs., CD 10/7.

▲ Neb., Omaha—SCHOOLS—Bd. Educ., 3902 Davenport St., voted $20,000,000 bonds Nov. 22, school construction. CD 10/10.

▲ N. J., Westmont—HIGH SCHOOL—Haddon Twp. Bd. Educ., Westmont, high school, $1,000,000.

▲ N. C., Lenoir—SCHOOLS—Caldwell Co. Bd. Educ., Lenoir, voted $2,000,000 bonds Nov. 15, schools.

▲† O., Brecksville—HOSPITAL—Veterans Admin., Munitions Bldg., Wash., D. C., psychiatric hospital comprising of 22 bldgs. on 157 acre site, containing 1,000 beds, admission and treatment bldg., disturbed patients bldg., 2 continued treatment bldg., infirm patients bldg., dining hall and kitchen, special services bldg., rehabilitation bldg., therapeutic

exercise bldg., chapel, boiler room, etc. $23,000,000. CD 3/22/45.

▲ Pa., Elkins Park—SCHOOL—Cheltenham Twp. School Dist., Elkins Park, plans by Heacock & Platt, 1505 Race St., Phila., Senior High School, $4,500,000. CD 6/17.

▲ Pa., Johnsville—SCHOOL—Centennial Joint School Auth., Johnsville, plans by Haag & D'entremont, Jenkintown, elementary school, Upper Southampton Twp. $1,500,000. CD 11/2.

▲ Pa., Phila.—HOUSING—Phila. Housing Auth., 42 S. 15 St., plans by Norman N. Rice, 2400 Pine St., Whitehall Housing, 198 units, Margaret-Tackawanna Sts. $2,970,000, Bloom & Dorfman, 1411 Walnut St., consult. engrs. CD 3/10.

▲ Pa., Phila.—HOUSING—Phila. Housing Auth., 42 S. 15 St., plans by Knedler Mirick & Zantzinger, 12 S. 12 St., Oxford Village Housing Proj. No. 2, 650 units, Howell and Algon Sts. $9,750,000. CD 12/15/53.

▲ Pa., Phila.—HOUSING—Phila. Housing Auth., 42 S. 15 St., plans by Carroll-Grisdale-Van Alen, 204 W. Rittenhouse Square, Fitzwater Housing, 510 units, 13 and Fitzwater Sts., $7,650,000; plans by Harbison Hough Livingston & Larson, 117 S. 17 St., Penna Hospital Housing, 275 units, 44 St. and Haverford Ave., $4,125,000; plans by Martin-Stewart & Noble, 117 S. 17 St., Hoffman Housing, 151 units, 55 and Vine Sts., $2,265,000; plans by Walter Antrim & Charles Etter, 1601 Chestnut St., Hill Creek Housing addn., 73 units, Rising Sun and Adams Ave., $1,095,000. CD 9/21/49.

▲ Tex., Austin—STATE OFFICES BLDG., SUPREME COURTS BLDG., State of Texas, c/o State Building Comn., Capitol Bldg., Austin, plans by Kuehne, Brooks & Barr, Perry-Brooks Bldg., Austin. Atlee B. & Robert M. Ayres, 342 W. Woodlawn St., San Antonio, Tex., Cato & Austin, 2401 LaBranch St., Houston, George L. Dahl, 2101 N. St. Paul St., Dallas, Stone & Pitts, 1872 Calder St., Beaumont, and R. Max Brooks, Perry-Brooks Bldg., Austin, State Offices Bldg. $3,000,000; plans by Jessen, Jessen, Millhouse & Greeven, 2816 Hemphill Pk., Austin, Page, Southerland & Page, 602 West Ave., Austin, Mackie & Kamrath, 2713 Ferndale St., Houston, Supreme Courts Bldg., $3,000,000. CD 2/20/51.

▲ Tex., Garland—POWER PLANT—City, City Hall, electric power plant, $1,900,000. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 8/18.

▲ Tex., Midland—HOSPITAL—Midland Memorial Hospital, Midland, voted $500,000 bonds Nov. 19, hospital. $1,250,000. Preston M. Geren, 1607 Fort Worth Natl. Bank Bldg., Fort Worth, archt. CD 10/27.

▲ Tex., Terrell—WARD UNITS—Bd. for Texas State Hospital & Special Schools, 4405 Lamar Blvd., Austin, plans by Walter C. Moore, c/o owner, superv. archt., ward units for Terrell State Hospital. $1,040,000. Funds just made available.

▲ Va., Arlington—SCHOOL—Bd. Educ., 1426 Quincy St., plans by Rhees Burket, 1223 Connecticut Ave. N. W., Wash., D. C., 2nd addn. to Kenmore Junior High School, $1,000,000. CD 3/3.

▲ Wash., Seattle—CENTRAL LIBRARY—Seattle Public Library, 4 Ave. and Madison St., Zone 4, bond election Mar. 13, new central library. $4,500,000. CD 11/14/50.

▲ B. C., Nanaimo—HOSPITAL—Nanaimo Hospital Bd., Dr. C. C. Browne, mgr., Nanaimo, plan by Gardiner, Thornton & Partners, 1520 Alberni St., Vancouver, 100-bed civic hospital addn. $2,000,000. CD 1/11/54.

▲ Ont., Ottawa—WEST BLOCK—Dpt. P. Wks., Hunter Bldg., plans by E. A. Gardiner, c/o owner, new west block on Parliament Hill, Incl. 700 rooms for officiers, swimming pool, lounge, cafeteria, etc. $6,500,000

COMMERCIAL BUILDINGS

▲ Ariz., Phoenix—MOTOR HOTEL—Nace-Stroud Development Co., 2730 N. Central Ave., plans by Frank Lloyd Wright, N. Central Ave., resort-type motor hotel, $1,000,000.

▲ Calif., Canoga Park—DWELLINGS—Orcutt Gardens, 5666 W. 3 St., Los Angeles, 94 frame, stucco dwellings, Vassar Ave. $1,000,000.

▲ Calif., Canoga Park—DWELLINGS—Mason Constr. Co., 16609 Ventura Blvd., Encino, 139 frame, stucco dwellings, Loudelius and Delco Sts. $1,800,000.

▲ Calif., Encino—DWELLINGS—Woodman Bldg. Co., 241 S. Robertson Blvd., Beverly Hills, 205 frame stucco dwellings, Bullock, Groves and Babbitt Sts. $2,500,000.

▲ D. C., Wash.—SCHOOL—National Radio Institute, 16 and U Sts. N.W., plans by Alvin Aubinoe, Inc., 1515 19 St. N. W., school, 3915 Wisconsin Ave. N.W. $1,000,000.

▲ Ill., Lake Forest—DORMITORIES, etc.—Lake Forest College, Sheridan and Deerpath Rds., plans by Naess & Murphy, 80 E. Jackson St., Chicago, Zone 4, two 2 or 3 story each dormitories, faculty houses, $1,200,000. CD 11/5/54.

▲ Ill., Skokie—STORE UNIT—The Fair Store, State and Adams St., Chicago, Zone 3, plans by Loebl Schlossman & Bennett, 430 N. Michigan Ave., Chicago, Zone 11, store unit in Old Orchard Shopping Center, Golf Rd. and Skokie Hy. $5,000,000.

▲ Ill., Wilmette—UNIVERSITY—Loyola Academy 6325 Sheridan Rd., Chicago, plans by Naess & Murphy, 80 E. Jackson St., Chicago, Zone 4, catholic university, 25-acre site, along Edems Hy. at Lake St. $3,000,000.

▲ Iowa, Cedar Rapids—STUDENT HOUSING, etc.—Coe College, 1220 1 Ave. N. E., addnl. student housing and dining facilities. $1,165,000.

▲ N. J., Wildwood Crest—MOTEL—Bayview Corp., 2803 Pacific Ave., 160-unit motel. $1,250,000.

▲ N. Y., Amherst—STORE—Wm. Hengerer Co., 465 Main St., Buffalo, 2 or 3 story, 95,000 sq. ft. store, Main and Eggert Rd. $1,000,000, Raymond Loewy Corp., 488 Madison Ave., New York, N. Y., consult. engrs.

▲ N. Y., New York—APARTMENT—Benjamin & Louis Gordon, 972 E. 23 St., Brooklyn, plans by Schuman & Lichtenstein, 369 Lexington Ave., Zone 17, 17 story apartment, First Ave. northeast corner 57 St., $1,400,000. To go ahead in 1956.

▲ N. Y., New York—APARTMENT—181 E. 73 St. Corp., 122 E. 42 St., New York, Zone 17, plans by Sylvan Bien, 33 W. 46 St., Zone 19, 15 story apartment, 1270-78 Third Ave. and 181-97 E. 73 St., $1,250,000. To go ahead in 1956.

▲ N. Y., New York—APARTMENT—39 Gramery Park Corp., 349 E. 149 St., plans by Greenberg & Ames, 303 Fourth Ave., Zone 10, 17 story apartment, 260-64 Third Ave. and 147-59 E. 21 St. $1,500,000. To go ahead in 1956.

▲ O., Beachwood—HOMES—Stanley Bach & Bernard J. Jurlander, 1779 S. Taylor Rd., Cleveland, Zone 18, 26 homes, $1,000,000.

▲ O., Beachwood—SHOPPING CENTER—D. A. Visconsi, 1010 Euclid Ave., Cleveland, Zone 15, plans by Rudolph J. Gosel, The Arcade, Cleveland, Zone 14, 70-80 unit shopping center on 81 acre site bounded by Richmond Rd. South Woodland Rd., Shaker Blvd. and village boundary with Pepper Pike Village, $15,000,000, Raymond Loewy, 488 Madison Ave., New York, N. Y., Industrial designer.

▲ O., Dayton—SHOPPING CENTER—Geo. P. Huffman, Paul Shawhan & Assoc., 41 E. First St., shopping center on 27 acre site, Spring Valley Rd. and Dayton-Lebanon Pike in Washington Twp., $1,000,000. Constr. in 1958.

▲ O., Lyndhurst—HOMES—Hannan Constr. Co., 2605 Edgewood Rd., Cleveland, Zone 21, 60 homes, N. Sedgwick Rd. $1,500,000. Constr. about February 1956.

▲ O., Mack—RESIDENCES—Gerhardt Development Co., c/o R. W. Norris Co., 3159 Harrison St., Cincinnati, residential proj. on 450 acre tract on Fiddlers Green Rd. and Bridgetown Rd. $5,000,000. Nunlist & Frolicher, Traction Bldg., Cincinnati, consult. engrs.

▲ O., Maple Heights—HOMES—A. Siegler & Sons, 5117 Lee Rd., Bedford, plans by Marvin Rukin, 2195 Green Rd., Cleveland, Zone 21, 103 homes on site in Southgate subdivision between Northfield and Warrensville Center Rds. south of Libby Rd., $1,854,000; 87 homes on Ramage Ave. between Dunham and Lee Rds., $1,566,000. CD 4/22/52.

▲ O., Parma Heights—SHOPPING CENTER—Precision Realty Co., Maurice J. Fishman, pres., 6465 Pearl Rd., Cleveland, Zone 30, plans by Irving Robinson, 4300 Euclid Ave., Cleveland, Zone 3, 20 unit shopping centr, Pearl and West 130 St. $2,000,000. Bids within two months.

▲ O., Richmond Heights—HOMES—Stakich Constr. Corp., Robert Stakich, pres., 815 E. 185 St., Cleveland, Zone 19, plans by Rudolph J. Grosel, The Arcade, Cleveland, Zone 14, 200 homes. $4,600,000. Constr. in January.

▲ Pa., Pittsburgh—SHOPPING CENTER—Albert Felix, 5600 Brownsville Rd., plans by Elkan Avner, 1401 Berger Bldg., 30,000 sq. ft. steel, brick shopping center, $1,000,000.

▲ Tex., Galveston—RESIDENTIAL RESORT—Developing Corp. of America, c/o John Miller, c/o Galveston Country Club, Galveston, residential resort 640-acre site on Beach.

▲ Wash., Bellevue—THEATER, etc.—Sterling Theaters Co., Palomar Bldg., Seattle, Zone 1, theater and recreation center, $1,000,000.

▲ Wash., Spokane—HOUSES—C & S Land Co., S2016 Manito Pl., 120 houses in Spokane Valley between 24 and 32 Sts. from Blake to Evergreen Sts. $1,500,000. Work to begin about Jan. 1.

▲ Ont., Hamilton—DEPARTMENT STORE—Greater Hamilton Shopping Center Ltd., 464 Ottawa St. N., 2 story, 65,000 sq. ft., third floor 10,000 sq. ft., no bsmnt., steel frame, brick, limestone, department store, at shopping center, Barton St. and Kenilworth Ave, $1,500,000. Henry Morgan & Co., Ltd., lessee.

▲ Ont., Kitchener—SHOPPING CENTER—Owner, c/o Ridout Real Estate Ltd., 46 Bloor St. W., Toronto, shopping center, bounded by Clarence, King Wellington and York Sts. $12,500,000.

▲ Ont., Toronto—OFFICE—Yolles & Rotenberg, 111 Richmond St. W., plans by Page & Steele, 72 St. Clair Ave. E., 35 story 100x120 ft. rein.-con., steel, glass and stone facing office bldg., 400 ft. high, Richmond St. W. 300-car underground parking, $6,500,000. Hooper & Yolles, Suite 101, 111 Richmond St. W., consult. engrs. Construction in early 1956.

▲ Que., Montreal—CENTRAL MARKET—Central Metropolitan Market, Ltd., 424-A. Jacques Cartier Sq., plans by G. Paul Brassard, 3711 Dupuis Ave., central market, Cremazie Blvd. and McEachran Sts. $15,000,000.

▲ Que., Montreal—HOUSING—Home Owners Corp., 1940 Graham Blvd., Mount Royal, plans by Thibodeau & Thibodeau, 940 Cote de Liesse Rd., housing development. $6 000,000.

INDUSTRIAL BUILDINGS

▲ Ala., Holt—PLANT EXPANSION—Central Foundry Co., Inc., Holt, cast iron soil pipe and fittings mfg. plant expansion. $2,000,000.

▲ Ark., Pine Bluff—MILL—Dierks Forest, Inc., Mountain Pine, liner board mill for kraft paper plant, $25,000,000-$30,000,000. Rust Eng. Co., 575 6 Ave., Pittsburgh, Pa., consult. engr. CD 10/25.

▲ Calif., Fullerton—PLANT—Moore Business Forms Inc., 1001 S. Hope St., Los Angeles, plans by Daniel, Mann, Johnson & Mendenhall, 4201 Sunset Blvd., Los Angeles, 160,000 sq. ft. tilt-up concrete industrial plant. $1,000,000.

▲ Colo., Denver—PLANT—Glenn L. Martin Co., Middle River, Baltimore, Md., guided missiles plant, Over $1,000,000.

▲ Conn., Middletown—SCHOOL—State, R. J. Murphy, Jr. Comr. P. Wks., State Office Bldg., Hartford, plans by Seb J. Passanesi, 164 Court St., Vinal Regional Technical School. $1,450,000. CD 2/8.

▲ Fla., Port St. Joe—PLANT—Glidden Co., Union Commerce Bldg., Cleveland 14, O., plant, incl. office, small control bldg., 2 pre-fab bldgs. and refinery type constr. $2,500,000.

▲ Iowa, Des Moines—PLANT—Marquette Cement Mfg. Co., 5200 Park Ave., plant expansion, incl. silos, equip., office bldg. grinding mills. $1,750,000.

▲ O., Toledo—PLANT—Dana Corp., Bennet Rd., 125,000 sq. ft. plant addn. to increase production of bus and truck transmissions, $2,000,000.

▲ S. C., Irmo—GENERATING PLANT—South Carolina Electric & Gas Co., 328 Main St., Columbia, steam generating plant approx. 15 mi. from Columbia near company's hydro-electric plant. $19,000,000. Gilbert Assocs., Inc., 61 Broadway, New York 6, N. Y., consult. engr.

▲ Tex., El Paso—FACTORY—Jempron Corp., c/o Joseph Graves, City Hall, constr. hardboard mfg. factory, 640-site northeast of city. $1,000,000.

▲ Wash., Seattle—PLANT—The Borden Co., Chemical Div., 350 Madison Ave., New York, N. Y. formaldehyde plant. $1,000,000 Construction early next year.

▲ Wash., Snoqualmie Falls—GENERATING PLANT ENLARGEMENT, etc.—Puget Sound Power & Light Co., Electric Bldg., Seattle, Zone 1, enlarging capacity of generating plant and sub-station, $3,000,000. Work to begin about Jan. 1.

▲ B. C., Vancouver—PLANT—B. C. Sugar Refining Co. Ltd., foot of Rogers St., existing plant modernization, new unloading dock, storage warehouse and 2 large travelling bucket cranes installed, $1,500,000. Swan, Wooster & Partners, 718 Granville St., consult. engrs. CD 11/30.

▲ Ont., Hamilton—BLOOMING MILL—Steel Co. of Canada Ltd., Wilcox St., blooming mill, incl. extra finishing facilities, added furnace capacity and new dock areas. $20,000,000-$30,000,000.

▲ Ont., Sault Ste. Marie—STEEL MILLS—Algoma Steel Corp. Ltd., Wilde Ave., hot and cold rolled sheet steel mills. $50,000,000. CD 1/21/53.

▲ Sask., Saskatoon—GENERATING PLANT—Saskatchewan Power Corp., Saskatoon, steam electrical generating plant. $40,000,000. Construction to begin in early 1956.

UNCLASSIFIED

▲ California and Arizona—NATURAL GAS PIPE LINE, etc.—Pacific Gas & Electric Co., 245 Market St., San Francisco, Calif., natural gas pipe line and compressors to parallel the existing super luck pipe line between Topock, Ariz. and Milpitas, Calif. $20,000,000. Applied to the State Public Utilities Comn., for permission to construct.

▲† California—"P" SITE FACILITIES—U. S. Eng., 751 S. Figueroa St., Los Angeles, addnl. facilities at various "P" sites, Mt. Laguna, Boron, Cambria, Santa Rosa Island, San Clemente Island. $1,000,000. Chas P. Morgan & Assoc., 320 Pine St., Long Beach, consult. engrs.

▲ Calif., Sacramento—STATE FAIR GROUNDS—State Div. Architecture, P. Wks. Bldg., state fair grounds development and addns., incl. utilities, roads, buildings, auditorium, etc. $23,500,000.

▲ Mo., St. Louis County—PARKS AND PLAYGROUNDS—St. Louis Co., Luman F. Matthews, co. superv., Court House, Clayton, voted $2,200,000 bonds Nov. 22, development of parks and playgrounds in various parts of county. CD 10/7.

▲† N. J., Port Newark—PIER—Port of New York, 111 Eighth Ave., New York, four-berth pier, incl. 2,400 ft. wharf area, two 880x200 ft. transit sheds, 2 story office and parking area, Newark Bay, $9,300,000. Norton, Lilly & Co., New York, N. Y., lessee.

▲ O., Cleveland—DOCK IMPRVS.—City, Dpt. Port Control, Wm. J. Rogers, dir., City Hall, Zone 14, constr., dredging of dock at W. Third St. and the Lake, incl. 500 ft. cofferdam and 50 ft. concrete roadway plus dredging. $1,000,000-$1,200,000, Osborn Eng. Co., 7016 Euclid Ave., Cleveland, Zone 3, consult. engr. Wm. J. Rogers, city engr. Bids in January. CD 11/10.

▲ Wash., Bremerton—DRYDOCK—Bureau Yards & Docks, Navy Dpt., Arlington, Va., dry dock $28,000,000. Carey & Kramer, 1917 1 Ave., Seattle, Zone 1, and Moran, Proctor, Mueser & Rutledge, 420 Lexington Ave., New York, N. Y., consult. engrs. CD 1/21/54.

▲ Alaska, Anchorage—DOCKS—City, City Hall, surveys, foundation exploration, soil tests, for preliminary planning for new docks. $2,766,500. H & H A allotted funds. Work to start June 1956. CD 10/13/54.

▲ Ont., Toronto—COLISEUM—Canadian National Exhibition Assn., Coliseum, C. N. E. Grounds, Toronto, coliseum annex, Canadian National Exhibition. $3,000,000. CD 4/26/46, under Commercial Buildings.

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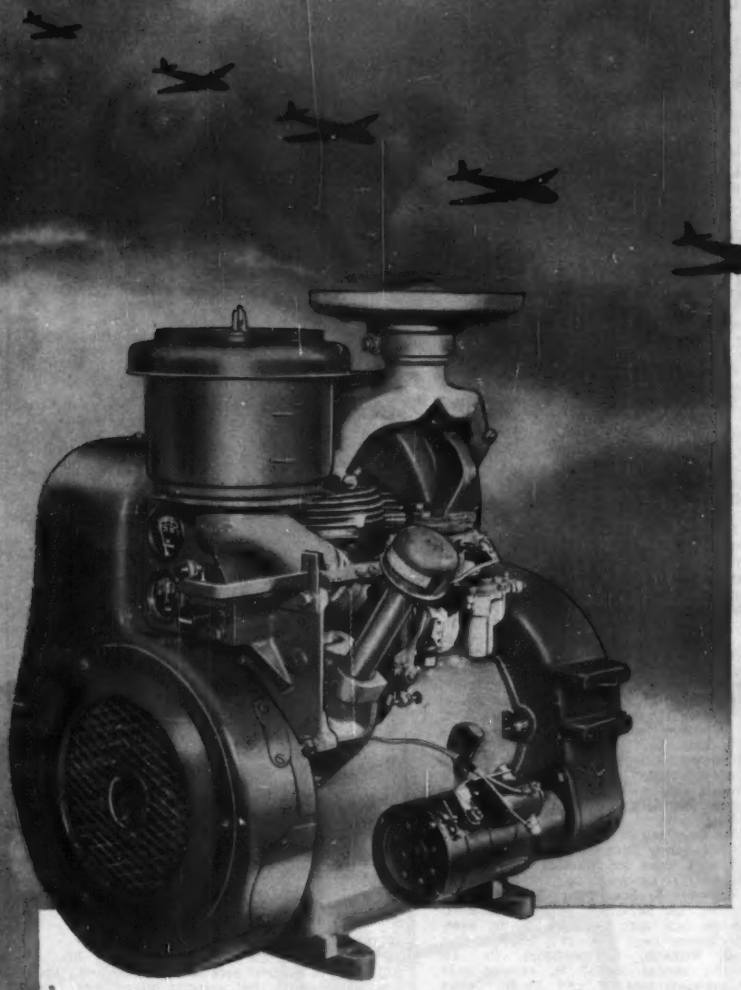

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NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
December 19 Connecticut
STREETS AND ROADS
December 19 Connecticut December 20, 28 Massachusetts

▲† **Mass., Bedford**—HANGAR—BA On Or About 1/4—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, maintenance hangar with shops and general purpose F.M. shop, bit. concrete roads, parking areas, walks, exterior utility systems, incl. water, sewer and drain lines, Laurence G. Hanscom Field, ENG-19-016-56-77. $1,000,000-$1,250,000. Plans deposit $20.

† **N. H., Portsmouth**—ROADS, etc.—BA On Or About 1/5—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass. constr. roads, storage and parking areas, utilities at Portsmouth Air Force Base, ENG-19-016-56-78. $500,000-$600,000. Plans deposit $10. CD 12/6/51.

† **N. H., Portsmouth**—HEADQUARTERS BLDG., etc.—BA On Or About 1/15—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., 2 story, 145x48 ft. 1st floor, and 113x48 ft. second floor wing headquarters bldg.; squadron headquarters bldg. (squadron admin. and supply) separate and similar structures at each of four sites in the SAC barracks area (groups 2, 4, 7-2 and 7-3) each bldg. approx. 84x48x10 ft. high; 1 story, 97x53 ft. guard house, 1 story, 93x49 ft. commissary clothing bldg.; 1 story, 61x32 ft. with 24x25 ft. wing, library; modification of existing chapel, ENG-19-016-56-38, Portsmouth Air Force Base. $600,000-$700,000. Plans deposit $20. CD 12/6/51.

BUILDINGS—BA

▲ **Mass., Boston**—DEPARTMENT STORE—BA 12/29—Jordan-Marsh Co., 450 Washington St., Department Store Unit No. 3, $3,000,000. Extended date, Perry, Shaw, Hepburn & Dean, 31 St. James Ave., Boston, archts. CD 11/29.

HEAVY CONSTRUCTION—LB & CA

▲† **Morrison-Knudsen Co. and Landers & Griffin, Inc.,** 800 Islington St., Portsmouth, N. H., CA $2,125,038, est. $2,200,000. taxiway and aprons, Portsmouth Air Force Base, ENG-19-016-56-37, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Nov. 22. CD 11/28.

▲† **Atlantic Gulf & Pacific Co.,** 15 Park Row, New York, N. Y. LB $1,797,100. dredging Mystic River, Boston Harbor to Charlestown Bridge, CIVENG-19-016-56-31, MASSACHUSETTS. U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass. Bids Dec. 5. CD 11/17.

▲† **Massachusetts Northern Constr. Corp.,** 588 Essex St., Lawrence, Mass. CA $2,710,732. Hoosic River Basin, Adams Flood Control Proj., Unit No. 4, Adams, CIVENG-30-075-56-5, MASSACHUSETTS. U. S. Eng., 111 E. 16 St., New York, N. Y. Bids Nov. 1, awarded Nov. 30. CD 11/9, under LB.

▲ **Morse Boulger Destructor Co.,** 205 E. 42 St., New York, N. Y. LB Alt. A-A-6 $1,395,844, A-5 $1,320,760, A-4 $974,500, est. $3,500,000. furnish, install incinerator equip. South Bay Incinerator, South Boston, BOSTON, MASS. City, Dpt. P. Wks., City Hall Annex, Boston, Mass. Bids Dec. 2. CD 10/19.

▲ **CONNECTICUT**—State Hy. Comn., State Office Bldg., Hartford,
The Savin Constr. Corp., 10 Village St., East Hartford, Conn., CA, $10,797,151. Proj. 306-03, 306-10, Proj. 307-01, 307-03, thruway construction, incl. bridge over Saugatuck River in Westport, overpasses in Westport, and bridge work, 32,636 ft. 3-lane, dual-parkway paving in Darien and Norwalk. Bids Oct. 24, awarded Dec. 5. CD 11/1, under LB.

† **N. Benvenuti & Sons,** 16 Elm St., New London, Conn., LB, $503,695, Folly Brook Proj., Connecticut River Flood Control, Hartford, CIVENG-19-016-56-26, CONNECTICUT. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Dec. 1. CD 11/9.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 21 Delaware December 29 Pennsylvania

BUILDINGS—BA

▲ **N. Y., Brooklyn**—SCHOOL—BA 12/20—Director Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, modernization of Erasmus Hall High School, Flatbush and Church Aves. $2,600,000. Plans deposit $30 general constr., $15 each for plumbing and drainage, heating and ventilating, electrical work and lighting fixtures. Extended date. CD 11/16.

▲ **N. Y., Brooklyn**—SCHOOL—BA 12/21—Director Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, new addn. and modernization existing Bushwick High School, Irving Ave. and Woodbine St. $2,400,000. Plans deposit $30 general constr., $15 each for plumbing and drainage, heating and ventilating, electrical work and lighting fixtures. Extended date. CD 11/16.

▲ **Pa., Butler** — SCHOOL — BA 1/16 — Butler Area Joint School Dist., Butler, 1 and 2 story, Senior High School, auditorium, swimming pool, 2 athletic fields, parking area, $5,000,000, Howard A. Murphey, 610 Butler County National Bank Bldg., Butler, archt. Firshing-Murray & Stauffer, Empire Bldg., Pittsburgh, engrs.

BUILDINGS—SLC

▲ **Pa., Conway**—SHOPPING CENTER—Pennsylvania Northern Lights Shoppers City, Inc., Donald M. Castro, pres., 383 S. Third St., Columbus, O., soon lets contract shopping center, incl. 85 stores, parking, $10,000,000, C. Melvin Frank, 185 State St., Columbus, O., archt. CD 12/3/54.

HEAVY CONSTRUCTION—LB & CA

▲ **Heyl & Patterson, Inc.,** 120 Broadway, New York 5, N. Y. LB $1,497,290. furnishing, installing 2 movable coal unloading towers for 59 Street Power Plant, Manhattan Boro, Contr. P-111, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Nov. 25. CD 11/17.

▲ **Arthur Venneri Co.,** 300 North Ave., Westfield, N. J. LB $1,471,563. airfield facilities and addnl. bldgs., Plattsburgh Air Force Base, ENG-30-075-56-57, PLATTSBURGH, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Dec. 6. CD 11/23.

NEW JERSEY—State Hy. Dpt., State Hy. Office Bldg. 1035 Parkway Ave., Trenton,
Reid Contg. Co., Inc., P. O. Box 215, Woodbridge, N. J., CA, $920,648, grading, Route 72 (Section 5B) for 1.313 mi. from Hilliard to Ship Bottom, Stafford Twp., Proj. F-130 (5), Ocean Co. Bids Nov. 22, awarded Dec. 2. CD 12/1, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
Pa.—H. J. Williams Co., Inc., 150 S. Sumner St., York, Pa. LB $3,033,442. constr. 49,265 ft. divided hy. of rein.-con., 4 I-beam, one prestressed precast concrete bridges, E. Manchester, Manchester and Conewago Twps., T.R. U.S. 111-24, York Co.;
Pa.—New Enterprise Stone & Lime Co., New Enterprise, Pa. LB $918,852. constr. 16,182 ft. divided hy. of rein.-conc. I-meam bridge, Hollidaysburg Boro, Frankstown, Allegheny and Logan Twps., Altoona City, TR 220, Blair Co.;
Pa.—L. M. Hutchison, R.D. 1, Mount Union, Pa. LB $700,851. wid'n. 24,065 ft. existing road with crushed aggregate base surf. new and existing base, bit. surf. Porter and Smithfield Twps., T.R.U.S. 22, Huntingdon Co.;
Pa.—H. R. Miller Co., Inc., P. O. Box 1235, Lancaster, Pa. LB $178,882. constr. 8,083 ft. crushed aggregate base with bit. surf. Penn and Warwick Twps., Lititz Boro L.R. 36045 (1), Lancaster Co.;
Pa.—E. D. Plummer & Sons, 961 S. Main St., Chambersburg, Pa. LB $274,734. constr. 10,078 ft. crushed aggregate base with bit. surf. 20 ft. wide, I-beam bridge Greene Twp., T.R. 997, Franklin Co.;
Pa.—Kenneth G. Richards, McConnelsburg, Pa. LB $282,058. wid'n. overlay 26,737 ft. existing road with crushed aggregate base bit. surf. 20 ft., Dublin Twp., T.R. 522, Fulton and Huntingdon Counties. Bids Dec. 2. CD 11/14.

▲ **Binkele Constr. Co.,** 315 W. Mifflin St., Lancaster, Pa. CA $538,699. Contr. No. 1, 15 m.g. rein.-con. reservoir, LANCASTER, PA. City of Lancaster Auth., Municipal Bldg., Lancaster, Pa. Grand total $2,912,573. Bids Nov. 9. CD 9/27;
Alconn Utilities, Inc., 25 Cliff St., Verona, N. J. CA $931,719. Contr. No. 2, 24,100 ft. 42 in. steel or concrete pipe, 960 ft. 36 in. steel pipe, 860 ft. 30 in. steel pipe, (Lancaster, Pa.);
Frank Kukurin & Sons, Inc., 616 Greensburg Ave., East McKessport, Pa. CA $981,708. Contr. No. 3, 31,400 ft. 42 in. steel or concrete pipe, appurtenances (Lancaster, Pa.);
Hammond Iron Works, P. O. Box 269, Warren, Pa. CA $46,920. Contr. No. 8, furnish, erect 300,000 gal. elevated tank (Lancaster, Pa.);
James F. Favino, 119 S. Franklin St., Red Lion, Pa. CA $222,988. Contr. No. 9, Bridgeport Area distribution sys., 15,300 ft. 4-to 12-in. pipe Class 150 M. J., 38 hydrants, 330 service connections (Lancaster, Pa.);
Ralph V. Daniels, Inc., 338 N. 29 St., Camp Hill, Pa. CA $190,539. Contr. No. 11, Quarryville Pike Distribution System (Lancaster, Pa.).

BUILDINGS—LB & CA

Mars Associates, Inc., & Normel Constr. Co., 132 Nassua St., New York 7, N. Y. CA $907,000. (5 bidders) general contract JUNIOR HIGH SCHOOL, 136 Fourth Ave. between 40 and 41 Sts., BROOKLYN, N. Y. Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. CD 11/3, under LB.

▲ **Caristo Constr. Co.,** 26 Court St., Brooklyn 2, N. Y. CA $1,560,000. (4 bidders) general constr. PUBLIC SCHOOL 58, Smith St. between Carroll St. and First Place, BROOKLYN, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. CD 11/14, under LB.

▲ **Frank E. Freeman, Inc. & Mandel Bros.,** 188 Montague St., Brooklyn 2, N. Y. LB $1,284,000. (4 bidders) general constr. of new addn. C Wing to Newtown High SCHOOL, 48-01 90 St., ELMHURST, N. Y. Director, Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Dec. 6. CD 11/9.

▲ **TGK Constr. Co., Inc.,** 55 W. 42 St., New York 36, N. Y. CA $2,219,500. (3 bidders) general contract JUNIOR HIGH SCHOOL 189, Barclay and Sanford Aves. and 147 St., FLUSHING, N. Y. Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. CD 11/10, under LB.

▲ **Caristo Constr. Corp.,** 26 Court St., Brooklyn 2, N. Y. CA $2,434,000. (5 bidders) general constr. JUNIOR HIGH SCHOOL 44, W. 76 and W. 77 Sts., and Columbus Ave., Manhattan Boro, NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. CD 11/21, under LB.

▲ **Caristo Constr. Corp.,** 26 Court St., Brooklyn 2, N. Y. LB $4,060,000 (3 bidders) general constr., New York SCHOOL of Printing, W. 49 and W. 50 Sts. between Ninth and Tenth Aves., Manhattan Boro, NEW YORK, N. Y. Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City 1, N. Y. Bids Dec. 6, CD 11/4.
Novak & Co., 19 Waverly Place, New York 3, N. Y. LB $383,777. (4 bidders) plumbing work (New York, N. Y.);
Afgo Engineering Corp., 475 Adelphi St., Brooklyn 17, N. Y. LB $538,000 (6 bidders) heating work New York, N. Y.);
Bank Electrical Co., 126 W. 32 St., New York 1, N. Y. LB $850,000 electrical work (New York, N. Y.);
Pecile Co., 47 Stewart Ave., Brooklyn 37, N. Y. LB $346,685. escalator work (New York, N. Y.).

F. D. Rich & Co., Inc., 322 Main St., Stamford, Conn. LB $575,000. Elementary SCHOOL, Osborn Rd., RYE, N. Y. Bd. Educ., Parson St., Rye, N. Y. Bids Nov. 29. CD 11/16.

Wildberger-Best Constr. Co., 2025 E. North Ave., Baltimore 13, Md. LB $703,640, est. $650,000. Edgecomb Circle Elementary SCHOOL, BALTIMORE, Md. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids Nov. 30, CD 11/16.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 21 Virginia

▲† **Tennessee**—BA 2/1—U. S. Eng., 306 Federal Office Bldg., Nashville, constr. power house, transmission yard, install powerhouse equipment and micro-wave relay tower, removal of coffer dam at Cheatham Dam, power plant involves mixing and placement of 21,200 cu. yd. concrete, placement of 2,100,000 lb. steel, constr. superstructure, etc. $3,000,000. CD 11/29.

HEAVY CONSTRUCTION—LB & CA

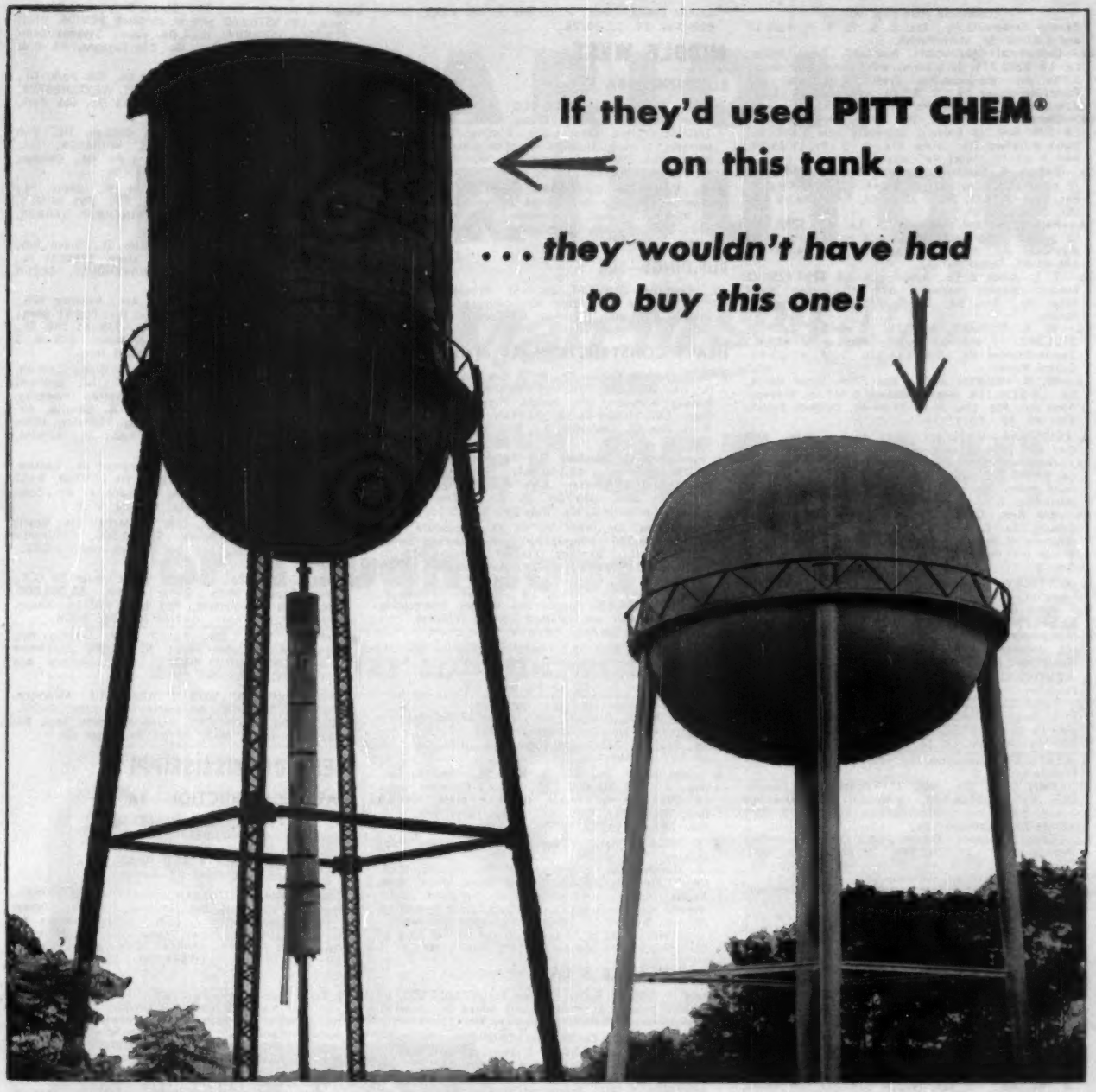
† **Ames & Webb, Inc.,** 3145 Broad Creek Rd., Norfolk, Va., CA $528,553. aircraft parking area, Naval Air Station, NOY 89521, OCEANA, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Nov. 15. CD 11/22, under LB.

▲ **FLORIDA**—State Road Dpt., Tallahassee,
Dunn Constr. Co., 2508 3 Ave., Birmingham, Ala., LB, $816,017 (6 bidders) rock base with b. conc., double 196 ft. concrete, steel overpass bridges over Florida East Coast Ry., drainage structures 8.546 mi. SR 5, Jobs 8901-204 and 8901-302, F-003-4 (19), and FG-003-4 (20), Martin Co.; LB $1,289,332 (7 bidders) grading roadway, rock base with b. conc., wid'n. existing 88 ft. bridge over Whitaker Bayou, storm sewers 4.932 mi. SR 45, F 001-2 (29) and U -011-2 (31) Jobs 1301-201, 1702-204, and 1702-205, Manatee and Sarasota Counties;
Fla.—Cone Bros. Contr. Co., Box 1301, Tampa, Fla., LB $117,818 (4 bidders) rock base, surf. tr. 2.811 mi. Main St. 0904-150 and 0963-150, SR 17 and S-17A, Highlands Co.;
Fla.—H. E. Wolfe Constr. Co., Box 1361 St. Augustine, Fla., LB, $1,871,093 (3 bidders) c. conc. and asph., 545 ft. concrete, steel overpass bridge over the Seaboard Air Line R. R., storm sewers 3.42 mi. SR 595, USG-219 (5) and US-219 (6), Jobs 1501-302 and 1501-202, Pinellas Co.;
Fla.—W. H. Armston Co., Inc., Dunedin, Fla., LB, $162,064 (5 bidders) medium excav., stab. base with bit., 120 ft. concrete deck slab bridge on treated timber piling, small drainage structures 5.043 mi. SR-S-760-A, S-362 (2), DeSoto Co.;
Fla.—Coggin & Deermont, Chipley, Fla., LB, $197,011 (3 bidders) base with bit., 225 ft. concrete slab deck bridge on concrete piling, small drainage structures 8.656 mi. SR S-285, S-525 (1), Job 6063-250, Walton Co.;
Fla.—J. W. Conner & Sons, Box 2522, Tampa, Fla., LB, $159,531 (4 bidders) shell base with bit., 140 ft. concrete slab deck bridge on concrete piling, small drainage structures 3.751 mi. SR S78-A, S-435 (1), Job 158-250, Lee Co. Bids Dec. 6. CD 11/23.

▲ **ALABAMA**—State Hy. Dpt., Montgomery,
Ala.—G. & R. Coal Co., Decatur, Ala., LB, $554,096 3.316 mi. U. S. 31, Cullman Co.;
Ala.—Alvin J. Hazelrig, Jr., Cleveland, Ala., LB $76,400. bit. 2.669 mi. Bibb Co.;
Ala.—Ledbetter-Johnson Co., Rome, Ga., LB, $79,390, grading, drainage 5.161 mi. DeKalb Co.;
Ala.—Clyde O. Mitchell, 104 N. 44 St., Birmingham, Ala., LB, $376,005. bit. 9.654 mi. Fayette Co.; LB $169,729, bit. 5.507 mi. Blount and Etowah Counties. Bids Nov. 18. CD 11/4.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,
La.—T. L. James & Co., Inc., Ruston, La. LB $1,042,852. (2 bidders) widen existing c. conc. 19.783 mi.

(Continued on page 92)



THEY TRIED to protect the water tank on the left with ordinary paint. That's why they had to recently erect its replacement on the right!

But *this* time they beat corrosion to the punch. A *Pitt Chem* engineer was called in prior to actual construction. Here's what he recommended: (1) Protect the tank interior with *Pitt Chem* 104—a tough, durable, water resistant coating that imparts no taste or odor to water. (2) Protect exterior tank surfaces with *Pitt Chem* 209 Alkyd Resin Aluminum Coating to combine attractive appearance with maximum resistance to atmospheric corrosion. (3) Protect the water pipe mains above ground and below with *Pitt Chem* 101, a thick, heavy duty tar base coating.

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(Continued from page 90)

Berwick Centerville Hy., Rte. U. S. 90, S. P. 4-08-10 and 4-07-06, St. Mary Parish;

La.—Continental Constructors, Box 407, Baton Rouge, La. LB $280,779. (2 bidders) soil cement base course 7.798 mi. Morganza-Red Cross, Innis-Torras and Patins-Hermitage Hy., S. R. 10, 418 and 415, S. P. 219-30-07, 222-04-08, Pointe Coupee Parish;

La.—Campbell Constr. Co., Box 1758, Shreveport, La. LB $387,660. (2 bidders) aggregate type 5.691 mi. Baine-Wakefield Hy., State Rte. 3, S. P. 19-05-09, FAP F 81 (3), West Feliciana Parish;

La.—Bedsole & Shetley, Mansfield, La. LB $345,149. (2 bidders) shaping roadway 5.044 mi. Holly-Kingston Hy., Rte. La. 175, S. P. 35-04-06, FASP No. S 221 (5), DeSoto Parish;

La.—Hall & Holland, Montgomery, La. LB $282,130. (2 bidders) aggregate type 9.818 mi., Holly Ridge Mayflower Hy., Rte. La. 573, S. P. 186-04-09 and 186-03-07, Tensas Parish;

La.—T. L. James & Co., Ruston, La. LB $293,425. (2 bidders) shaping roadway 7.829 mi. Forked Island Ester Hy., Rte. 82, S. P. 215-01-03, Vermillion Parish;

La.—W. E. McDonald, Box 237, Glenmora, La. LB $101,241. (2 bidders) shaping roadway 6.041 mi. Zwolle-Belmont Hy., Rte. La. 120, S. P. 42-03-04, Sabine Parish;

La.—W. H. Patterson & Co., Box 2229, Baton Rouge, La. LB $136,114. shaping roadway 0.447 mi. Grayson-Sikes Hy., Rte. 126, S. P. 91-09-07, Caldwell Parish. Bids No. 30. CD 11/16.

▲ LOUISIANA—Mississippi River Bridge Auth., 422 City Hall, New Orleans,

La.—Bethlehem Steel Co., Candler Bldg., Atlanta, Ga. CA $3,995,772. Contr. No. 6, superstructure of deck truss spans for Greater New Orleans Bridge over Mississippi River.

La.—Boh Bros. Constr. Co., 2400 Cypress St., New Orleans, La. CA $1,090,914. Contr. No. 5, superstructure of deck truss spans for Greater New Orleans Bridge over Mississippi River. Bids Nov. 30, awarded Dec. 2. CD 12/5, under LB.

▲ KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort,

Ky.—Harry O. Wyse, Versailles Rd., Lexington, Ky. CA $1,549,294. major structures, 7 street overpasses and 1 railroad overpass, IN 01-6 (3)-2 and ING 01-6 (4), Jefferson Co. Bids Nov. 30. CD 11/16, under Streets and Roads.

▲ KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort,

Ky.—Codell Constr. Co., Winchester, Ky. CA $1,390,046 (9 bidders) c. conc. 0.286 mi. North-South Expressway, IN 01-6-(3), ING 01-6 (4), SP 56-798, Jefferson Co. Bids Nov. 30. CD 11/16.

▲ KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort,

Ky.—Kelly Contg. Co., Inc., 317 Wallace Ave., Louisville, Ky. LB $126,570. (3 bidders) b. conc. Class I surf. 0.168 mi., Inner Belt Line Rd., U 528 (15), SP 56-898, Jefferson Co.;

Ky.—Edgar Stephens Constr. Co., 960 Julia St., Paducah, Ky. LB $161,394. (3 bidders) b. conc. Class I surf. 0.301 mi., Murray-New Concord Rd., S 58 (2), SP 18-63, Calloway Co.;

Ky.—Sam Nally Co. & Saltsman Constr. Co., Bardstown, Ky. LB $509,938. (3 bidders) b. conc. Class I surf. 1.522 mi. Bardstown-Springfield Rd., F 222 (5), SP 90-125, SP 115-129, Nelson and Washington Counties;

Ky.—R. R. Dawson Bridge Co., Bloomfield, Ky. LB $139,310. (3 bidders) traffic bound limestone 3.353 mi. Mt. Olivet-Powersville Brooksville Rd., S 159 (3), SP 101-61, SP 12-146, Robertson and Bracken Counties;

Ky.—Greer Bros. & Young, London, Ky. LB $118,750. (2 bidders) reconstr. local bank or creek grav. 3.065 mi. Island Creek Rd., RS 98-903, Pike Co.;

Ky.—Adams Constr. Corp., Paintsville, Ky. LB $158,783. (2 bidders) b. conc. 0.69 mi. South Williamson-Nolan, W. Va. Rd., US 529 (3), S 529 (2), SP 98-43, Pike Co. Bids Nov. 30. CD 11/16.

BUILDINGS—LB & CA

Merando, Inc., 4098 Minnesota Ave. N. E., Wash., D. C., LB $828,556. (11 bidders) 3 story MEDICAL WING, LAUNDRY and BOILER PLANT, NURSES' HOME at present site, ARLINGTON, VA. Arlington Hospital, 5129 16th St., North Arlington, Va. Bids Dec. 1. CD 11/11.

Charles J. Craig Constr. Co., 1610 Westminster Dr., Columbia, S. C. CA $814,690, 84,000 sq. ft. Crayton Junior HIGH SCHOOL, COLUMBIA, S. C. Bd. Trustees, City P. Schools, Columbia, S. C. Bids Nov. 29. CD 11/14.

Mann-Mobley Constr. Co., 206 N. Main St., Fitzgerald, Ga., CA, $638,663. Turner County High SCHOOL and Eureka Elementary and High SCHOOL, Turner Co., ASHBURN, GA. State School Bldg. Auth., Kemper Bldg., 41 Exchange Pl. S. E., Atlanta, Ga. Bids Nov. 2. CD 10/4.

Farnsworth & Chambers, Box 332, New Orleans, La. LB $846,000. 6 story, 81x127 ft. steel, brick, masonry Maison Blanche BLDG. addn., NEW ORLEANS, LA. Maison Blanche Co., 901 Canal St., New Orleans, La. Bids Nov. 22. CD 11/2.

Sullivan & Cozzart, 822 W. Kentucky St., Louisville, Ky. CA $600,000. WAREHOUSE and OFFICE, near Benchel, LOUISVILLE, KY. Dixie Cartage Co., 1031 W. Main St., Louisville, Ky. Awarded Nov. 30.

† Malan Constr. Corp., 25-09 42nd Rd., Long Island City, N. Y., LB $637,000 (4 bidders) Phase II of multi-curie fission products PILOT PLANT in BLDG. Atomic Energy Comn., P. O. Box 3, Oak Ridge, Tenn. Bids Nov. 29. CD 10/26.

MIDDLE WEST

BUILDINGS—BA

▲† Ill., Great Lakes—BARRACKS, etc.—BA 12/22—Ninth Naval Dist., Dept. Navy, Great Lakes Naval Training Station, Great Lakes, 3 story, 132x191 ft. barracks, 1 story, 160x320 ft. brick subsistence bldg. $2,000,000. Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Zone 3, archts. CD 6/28/51.

▲ O., Youngstown—CATHEDRAL—Bids Asked—Youngstown Diocese, Most Rev. Emmet M. Walsh, bishop, 144 W. Wood St., constr. St. Columba Cathedral. $1,000,000. Diehl & Diehl, 120 Madison St., Detroit, Mich., archts. CD 9/15.

BUILDINGS—SLC

Ill., Evanston—CONVENT, etc.—St. Athanasius Parish, 2510 Ashland Ave., soon lets contract convent and school. $430,000. Thomas E. Cooke, 228 N. La Salle St., Chicago, Zone 1, archt.

HEAVY CONSTRUCTION—LB & CA

† W. L. Johnson Constr. Co., P. O. Box 6668, Columbus, O. CA $803,016, est. $1,016,688. exten. V.H.B. Runway Airfield Light, Wright Patterson Air Force Base, ENG-15-029-56-10, DAYTON, O. U. S. Eng., P. O. Box 59, Louisville, Ky. Bids Nov. 29, awarded Nov. 30.

▲ Farnsworth & Chambers, Box 74, Houston, Tex. LB $3,284,705, est. $3,142,767. research facilities Aeronautical Laboratory, Area B, Wright Patterson Air Force Base, DAYTON, O. U. S. Eng., P. O. Box 59, Louisville 1, Ky. Bids Dec. 6. CD 10/17.

▲ Healy Bros. Co., 9504 W. 47 St., Brookfield, Ill., CA, $1,176,390. intercepting sewers, Morton Grove, CHICAGO, ILL. Sanitary Dist. of Chicago, 910 S. Michigan St., Chicago 5, Ill. Awarded Dec. 1. CD 1/2/53.

John C. Tully Co., 33 N. La Salle St., Chicago 2, Ill. CA, $334,000. Upper Des Plaines Intercepting Sewer, Norwood and Harwood Heights (Chicago, Ill.) Awarded Nov. 30.

Santucci Constr. Co., 5025 Church St., Skokie, Ill., CA, $588,589, interceptor sewer, WAUKEGAN, ILL. North Shore Sanitary Dist., Dehringer Rd., Waukegan, Ill. Awarded Nov. 21. CD 11/25, under LB.

WISCONSIN—State Hy. Comn., Madison,

H. Turner & Son, Boscobel, Wis., CA, $507,468 Contract 1, grading, ballast, structures 4.229 mi. S.T. Hy. 69, Proj. T 032-1 (3), Green Co. Bids Nov. 29. CD 12/2, under LB.

▲ Immel Constr. Co., 560 N. Main St., Fond du Lac, Wis., LB, $1,018,000. 20. m.g.d. filtration plant LB $973,060. 15 m.g.d. filtration plant, GREEN BAY, WIS. City, City Hall, Green Bay, Wis. Bids Nov. 29. CD 11/11.

▲ MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

L. A. Davidson Co., 213 E. Joseph St., Lansing, Mich. CA $1,269,256. raising 2 west spans Grand River Bridge, wid'n. structure, constr. retaining walls, removal run around tracks, underpass, grade separation, reconstr. Saginaw St. between Washington and Pennsylvania Aves., F B1 of 33-6-8 C1-U and UX1 of 33-6-12 C1-U (F 242 17), Ingham Co. CD 11/30, under LB.

BUILDINGS—LB & CA

Donald F. Gibbens, Elyria, O. Own Forces. $855,000. 67 HOMES between Lorain Blvd. and Adams St. in northwest corner of ELYRIA, O. Awarded Nov. 15.

▲ Robert Behrmann Constr. Co., 300 S. Belt-West, Belleville, Ill., CA, $863,041. 2 story, bsmnt., 46x243 ft., and 1 story, part bsmnt., 138x157 ft., brick, concrete, steel HOSPITAL, 4501 North Park Dr., BELLEVILLE, ILL. Protestant Hospital Builders Club, Inc., Oliver C. Joseph, pres., 10A W. Washington St., Belleville, Ill. Bids Sept. 8. CD 9/14, under LB;

Rust Contg. & Supply Co., 920 W. A St., Belleville, Ill., CA, $772,504, plumbing, heating ventilating, air-conditioning work (Belleville, Ill.)

Pioneer Trust & Savings Bank, 400 W. North Ave., Chicago, Ill., Own Forces, $650,000, 50 HOMES, area of 3,000 N. Nora Ave., CHICAGO, ILL. Harry N. Johnson, 4850 N. Winchester St., Chicago, Ill., archt.

▲ Sherlock Homes, Inc., 7025 S. Crawford St., Chicago, Ill., Own Forces, $1,800,000. 150 HOMES, CHICAGO, ILL. Nordlie & Co., 11100 S. Michigan St., Chicago, Ill., archts.

Robert E. Nilles, 717 Indian Rd., Glenview, Ill., Own Forces, $800,000. 25 HOMES, GLENVIEW, ILL. Harold Stahl, 310 N. Michigan St., Chicago 1, Ill., archt.

▲ Midland Enterprises, 2459 Peterson Rd., Chicago, Ill., Own Forces, $1,500,000. 100 HOMES, NORTH LAKE, ILL. Midland Enterprises, 2459 Peterson Rd., Chicago, Ill. A. J. Del Bianco, 5501 Irving Park Rd., Chicago, Ill., archt.

Jules Constr. Co., 7020 Octavia St., Chicago, Ill., Own Forces, $575,000. 35 HOMES, PARK RIDGE, ILL.

▲ Monterey Builders, Inc., 5717 N. Milwaukee Ave., Chicago, Ill., Own Forces, $3,800,000. 160 HOMES north of town, PARK RIDGE, ILL. A. J. Del Bianco, 5501 W. Irving Park Rd., Chicago, Ill., archt.

▲ Jos. E. Merrion, 2015 E. 79 St., Chicago, Ill., Own Forces, $3,500,000. 330 HOMES, ROBBINS, ILL. Emil J. Mix, 908 Pontiac St., Wilmette, Ill., archt.

Langer & Assocs., Inc., 219 Jewett Bldg., Des Moines, Iowa, LB $578,680 general contract SENIOR HIGH SCHOOL, SAVANNA, ILL. Bd. Educ., Savanna Community High School Dist. No. 200 Savanna, Ill. Bids Dec. 1. CD 11/17.

▲ Martindale Estates, 1130 Garfield St., Oak Park, Ill., Own Forces, $7,200,000. 400 HOMES, WESTCHESTER, ILL. Martin H. Braun, 1130 Garfield St., Oak Park, Ill., archt.

Titus Ruscitti, 6232 Roscoe Ave., Chicago, Ill., Own Forces, $600,000. 25 HOUSES, WHEATON, ILL. A. J. Del Bianco, 5501 W. Irving Pk. Rd., Chicago, Ill., archt.

▲ Chesterfield Builders, Inc., 3034 W. Devon St., Chicago, Ill., Own Forces, $4,000,000, 300 HOMES, lift station and sewerage sys., WINTHROP HARBOR, ILL.

Charmin Paper Mills, Inc., 800 Elm St., Green Bay, Wis., Day Labor, $550,000, 1 story, 170x231 ft., concrete, steel, brick blocks, WAREHOUSE, GREEN BAY, WIS.

▲ Arvid Johnson & Son, 7112 22 Ave., Kenosha, Wis., CA $1,250,000. 34,500 Dynamatic Div. PLANT addn., KENOSHA, WIS. Eaton Mfg. Co., 739 E. 140 St., Cleveland 10, O. Lindi-Schutte & Assoc., 808 N. 3 St., Milwaukee, Wis., engrs. Awarded Nov. 7.

▲ The Christman Co., 408 Kalamazoo Bldg., Lansing, Mich. CA $1,160,443. addnl. HOUSING facilities for married students Michigan State University, EAST LANSING, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Mason & Carver, 517 N. Washington St., Lansing, Mich., archts.

▲ Francis J. Corr, Inc., 1205 E. Saginaw St., Lansing, Mich. CA $1,318,900. Olin HEALTH CENTER, EAST LANSING, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich.

▲ Northwood Organization, Cook and McCall Sts., Ecorse 29, Mich. Owner Builds. $2,000,000. Continental Home Development, 160 frame brick ranch HOMES, ECORSE, MICH.

▲ Fred C. Stiles Co., (Builder), 1600 Linden St. S.E., Grand Rapids, Mich. Owner Builds. $5,000,000. Arbor Hills Development, 325 brick HOMES, Knapp, Fuller and Ball Aves., GRAND RAPIDS, MICH.

▲ Green & Klein, Inc., 18107 James Couzens Hy., Detroit, Mich. Owner Builds. $1,250,000. Clairborne Heights, 100 brick HOMES, West Saginaw and Waverly Rds., LANSING, MICH.

Alstrom Constr. Co., 1021 E. Airport Rd., Muskegon, Mich. CA $926,490. Marquette Elementary SCHOOL, MUSKEGON, MICH. City, Frank A. Devoe, secy. Bd. Educ., Muskegon, Mich. CD 11/30, under LB.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
December 15 Kansas
STREETS AND ROADS
December 15 Kansas

† South Dakota—AUTOTRANSFORMERS—BA 12/22—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., autotransformers for [illegible] Falls Substation, Transmission Div., Missouri River Basin Proj. Inv. DS-4549. Bids Nov. 15 rejected, LB $769,700, and LB $93,120. CD 11/28, under LB.

▲† Tex., Port Isabel—RUNWAY, TAXIWAY—BA 1/17—Bureau Yards & Docks, Dpt. Navy, Admin. Bldg. No. 1, Naval Air Station, Corpus Christi, runway and taxiway paving and appurtenances for field, Naval Auxiliary Landing Field, NOY 86993. $1,000,000. Plans deposit $60. Extended date. CD 11/9.

▲† South Dakota—BA About 1/20—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., earthwork, Stage V, incl. 15,000,000 cu. yd. excav.; 9,000,000 cu. yd. impervious fill; 6,000,000 cu. yd. uncompacted fill; piezometer tubes, settlement gages, riprap and bank shale protections, Oahe Reservoir Proj., near Pierre, CIVENG-25-066-56-75. Total approx. $25,000,000. CD 9/7.

BUILDINGS—BA

† N. M., Albuquerque—HOUSING—BA 12/23—U. S. Eng., Box 1538, Albuquerque, 39 duplexes, Sandia Base, ENG-29-005-56-50. $350,000-$750,000. CD 11/23.

HEAVY CONSTRUCTION—LB & CA

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

S. J. Groves & Sons Co., 500 Wesley Temple Bldg., Minneapolis, Minn. CA $670,900. grade 3.1 mi. between Gilmore and Mankato Aves. in Winona, Winona Co. CD 11/25, under LB.

▲ MISSOURI—State Hy. Dpt., Jefferson City,

Mo.—Koss Constr. Co., 205 Farm Bureau Bldg., Des Moines, Iowa. CA $344,062. 24 ft. c. conc. 2.987 mi. Jackson Co.

Mo.—Swenson Constr. Co. & Union Constr. Co., 1401 Fairfax Trafficway, Kansas City, Kan. CA $596,048 graded earth, retaining walls, c. conc. 0.555 mi. Jackson Co.; CA $945,189. graded earth, retaining wall, c. conc. 0.284 mi. Jackson Co. Grand total $1,885,299. Bids Nov. 18, awarded Dec. 3. CD 11/29, under LB.

(Continued on page 95)

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GET SET NOW!

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THIS KING SIZE COUPON WILL BRING YOU THE FACTS!

MACHINE	SHOVEL CAP. CU. YD.	SHOVEL BOOM LENGTH (EFF.)	HANDLE LENGTH (OVERALL)	MAX. CRANE BOOM LENGTH	MAX. CRANE RATING IN TONS @12' RAD. EXCEPT AS NOTED CRAWLER	TRUCK	WAGON	HOE CAP. CU. YDS.	ASK FOR BULLETIN NUMBER
MARION 32-M	¾	19'-6"	16'-4"	80'-0"	*17½	*25	*25	¾	416
MARION 43-M	1	22'-6"	16'-4"	100'-0"	*27	*35	—	1–1¼	415
MARION 362	1½	24'-8"	18'-2"	100'-0"	37	—	—	1½–2	398-D
MARION 372	—	—	—	100'-0"	43	—	—	—	—
MARION 83-M	2	24'-8"	18'-2"	120'-0"	60	—	—	2–2¼	414
MARION 87-M	—	—	—	140'-0"	75	—	—	—	—
MARION 93-M	2½	27'-4"	20'-0"	120'-0"	80	—	—	—	397-E
MARION 101-M	3	27'-4"	20'-0"	120'-0"	84	—	—	—	417
MARION 111-M	4	32'-0"	23'-8"	120'-0"	169	—	—	—	402-B

*Rated at 10' Radius in Accordance with General Practice.

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WHY IS GOOD MORTAR IMPORTANT?

Because of their size and weight, concrete blocks require mortar with "body", plasticity and water-retaining capacity. Brixment meets all these requirements. It has the *body* necessary to support the weight of the unit and hold it up to the line. It has the *plasticity* necessary to prevent the mortar from falling off the long head joint, while the block is being placed in the wall. It has high *water-retaining capacity*, which gives the bricklayer more time to shift and adjust the block to its final position before the mortar stiffens.

It is the combination of these characteristics that makes Brixment the leading masonry cement for concrete block as well as for brick.

Louisville Cement Company . . . Louisville 2, Kentucky

(Continued from page 92)

BUILDINGS—LB & CA

Eric A. Carlstrom Constr. Co., Mankato, Minn. LB $889,870. (9 bidders) general contract 2 story, bsmnt. HIGH SCHOOL, ST. PETER, MINN. Bd. Educ. E. C. Trimbo, clk., St. Peter, Minn. Bids Dec. 1. CD 11/2.

▲ **R. M. Parsons Eng. Co.,** 617 S. Olive St., Los Angeles, Calif. CA $1,500,000. general contract REFINERY expansion, incl. addnl. storage facilities, WRENSHALL, MINN. International Refineries, Inc., L. G. Alexander, vice pres. and genl. mgr., 227 Colfax Ave. N., Minneapolis, Minn.

▲ **M. E. Gilliox Constr. Co.,** Monett, Mo. CA $1,129,000. Power Station Contr. No. 18, dam and spillway, SPRINGFIELD, MO. City, City Hall, Springfield, Mo. CD 11/22, under LB.

▲ **J. J. Fritch Constr. Co.,** 6834 Harry Hines Blvd., Dallas, Tex., CA $4,500,000. SHOPPING CENTER units, DALLAS, TEX. Cato Corp., c/o C. Grady Cates Jr. & Louis J. Hexter, 1312 Main St., Dallas, Tex. CD 12/7.

▲ **G. E. Bass & Co.,** 2715 N. State St., Jackson, Miss. CA Est. $4,000,000. 17 story OFFICE BLDG., Harvey and Park Ave., OKLAHOMA CITY, OKLA. Felix Investment Co., Liberty Bank Bldg., Oklahoma City, Okla. Sorey, Hill & Sorey, 809 N.W. 36 St., Oklahoma City, Okla., archts. Awarded Nov. 30.

Schneider Constr. Co., 3004 W. Dallas St., Houston, Tex., CA $788,525. WAREHOUSE, HOUSTON, TEX. F. W. Heitmann Co., 113 Main St., Houston, Tex. CD 12/7.

Dominican Sisters, c/o Dean Eichelberger, archt., 2 Chelsea Pl., Houston, Tex., received no bids Nov. 25, 2 story, 70,000 sq. ft. steel, brick HIGH SCHOOL, HOUSTON, TEX. Est. $750,000. CD 11/21.

▲ **Texas Portland Cement Co.,** Orange, Tex. Separate Contracts. $2,350,000. cement mfg. PLANT, ORANGE, TEX. CD 12/5.

▲ **Aluminum Co. of America,** Point Comfort at Port Lavaca, Tex. Owner Builds. $11,000,000. PLANT EXPANSION at Point Comfort, PORT LAVACA, TEX. CD 4/7/48.

▲ **Aluminum Co. of America,** Rockdale, Owner Builds. $24,000,000. PLANT EXPANSION, 2 smelting pot lines, etc., ROCKDALE, TEX. CD 2/24.

▲ **Riedesel Constr. Co.,** 2325 Ninth Ave. N., Billings, Mont. LB $1,030,800. general contract RESIDENTAL HALL and SCIENCE LIBRARY, HELENA, MONT. Carroll College, Helena, Mont. CD 3/2.

FAR WEST

HEAVY CONSTRUCTION—BA

▲† **Calif., Muroc**—HANGAR—BA 12/28—U. S. Eng., 751 S. Figueroa St., Los Angeles, base maintainance hangar, Edwards Air Force Base, ENG-04-353-56-30, $1,750,000. CD 8/22.

▲ **WASHINGTON**—Bids Late in January—Washington Toll Bridge Auth., Olympia,
floating concrete bridge across Lake Washington east of Seattle, $18,000,000. CD 6/13.

BUILDINGS—BA

Idaho, Boise—STATE OFFICE—BA 12/22—State Dpt. P. Wks., Boise, 2 story, brick state departments office bldg. $850,000. Jedd Jones, 1324 Idaho St., archt. CD 5/6.

BUILDINGS—SLC

Calif., Torrance—HOSPITAL—Torrance Memorial Hospital, 1425 Engracia Ave., soon lets contract, hospital addn., $700,000. Merrill W. Baird, Bank of America Bldg., Glendale, engr. CD 11/22.

HEAVY CONSTRUCTION—LB & CA

† **Stolte, Inc.,** 8451 San Leandro St., Oakland, Calif., LB $772,026, est. $689,684 (6 bidders) 8 mi. section Corning Canal, Tehama Co., Central Valley Proj., Spec. DC 4539, CALIFORNIA Bureau Reclamation, Dpt. Interior, Red Bluff, Calif. Bids Dec. 6. CD 10/12.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

McCammon & Wundurlich Co., 2555 Pulbas Ave., Palo Alto, Calif., LB, $6,933,498, est. $6,800,000 (7 bidders) freeway 4.9 mi. on realigned routing of U. S. 40 and between 0.1 mi. south of Hilltop Dr. and 0.8 mi. north of Hercules, Contra Costa Co. Bids Dec. 7. CD 11/4.

▲† **Winston Bros. Co.,** 1532 S. California Ave., Monrovia, Calif., CA $2,045,605, est. $2,000,000. Los Angeles River Imprvt., Compton Blvd. to Atlantic Ave., North Long Beach Los Angeles Co., CIVENG-04-353-56-18, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 17. CD 11/23, under LB.

BUILDINGS—LB & CA

▲ **Western-Knapp Eng. Co.** (Div. Western Machinery Co.), 760 Folsom St., San Francisco, Calif., CA, $5,000,000. rehabilitating concentrating PLANT, INSPIRATION, ARIZ. Inspiration Consolidated Copper Co., Inspiration, Ariz.

▲ **Western Builders Co.,** W. 2208 Wellesley St., Spokane, Wash., CA, $2,500,000, 200 HOUSES; $350,000, SHOPPING CENTER, SPOKANE, WASH. W. C. Heyiman, American Legion Bldg., Spokane, Wash., archt. CD 3/18/52.

Guy E. Hall, Box 1723, Bakersfield, Calif., CA, $884,900, 2 story, 56,000 sq. ft., steel frame, rein.-con. LIBRARY, BAKERSFIELD, CALIF. Kern Co., Court House, Bakersfield, Calif. Bids Nov. 22, awarded Nov. 28. CD 11/30, under LB.

Campbell Constr. Co., 800 R St., Sacramento, Calif., CA, $649,148, La Serra HIGH SCHOOL, CARMICHAEL, CALIF. San Juan High School Dist., 7551 Greenbock Lane, Citrus Heights, Calif. Awarded Nov. 29. CD 11/23, under LB.

▲ **Theo. G. Meyer Constr. Co.,** 200 Quint St., San Francisco, Calif., LB, $2,358,255, est. $2,250,000. (5 bidders) Westmore SCHOOL, DALY CITY, CALIF. Jefferson Union High School Dist., Daly City, Calif. Bids Dec. 8. CD 11/22.

▲ **N. Roach Co.,** 5017 Telegraph Rd., Los Angeles, Calif., CA $1,109,770, WAREHOUSE, OFFICE, REPAIR GARAGE, WASH SHED, EAST LOS ANGELES, CALIF. International Terminal Co., 299 Aldine St., Oakland, Calif. Albert C. Martin, 333 S. Beaudry St., Los Angeles, Calif., archt.

▲ **Kemp Brothers,** 8750 Mettler St., Los Angeles, Calif., CA $1,437,000 (5 bidders) Buena Park HIGH SCHOOL, Buena Park, FULLERTON, CALIF. Fullerton High School Dist., Fullerton, Calif. Bids Nov. 30. CD 11/22.

Fairlane Builders, 2235 Beverly Blvd., Los Angeles, Calif., Owner Builds, $525,700. 47 frame, stucco DWELLINGS, Mariposa St. and Canfield Ave., POMONA, CALIF.

Cahill Brothers, 350 Sansome St., San Francisco, Calif., CA, $945,000 (7 bidders) 113,950 sq. ft. FLOWER TERMINAL, SAN FRANCISCO, CALIF. San Francisco Flower Growers Assn. & California Flower Market, c/o Mario J. Campi, 425 Bush St., San Francisco, Calif. Bids Sept. 6, awarded Nov. 29. CD 9/19, under LB.

Whittier Union High School Dist., 610 Philadelphia St., Whittier, Calif., rejected bids Nov. 16, rein.-brick, Santa Fe HIGH SCHOOL, WHITTIER, CALIF., LB $912,196. CD 11/29, under LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 21, January 4 Ontario

BUILDINGS—BA

▲ **Ont., Toronto**—HOUSING—BA 12/22—Central Mortgage & Housing Corp., archts., 40 Eglinton Ave. E., Contract No. 2, 10 blocks of 14 one, two and three bedroom apartments; No. 4, 8 blocks of 14 three bedroom apartments; No. 7, four blocks of 30 one, two and three bedroom apartments; No. 13, 4 blocks of 30 one and two bedroom apartments, each block 3 story, sub-bsmnt., poured concrete fdn., bearing-wall frame, steel bar joists, conc. slab roof, part of low-rental housing development in Barthurst-Lawrence Ave., for Ontario Dpt. of Planning & Development, Parliament Bldgs., Toronto, and Metropolitan Municipality of Toronto, 67 Adelaide St. E., Toronto, Federal Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. $3,500,000. Plans deposit $100. CD 7/6/54.

Ont., Niagara Falls—HIGH SCHOOL—BA 1/10—Stamford District Bd. Educ., 1773 Drummond Rd., high school. $600,000. Plans deposit $50. Gordon S. Adamson & Assocs., 52 St. Clair Ave. E., Toronto, archts. Wallace, Carruthers & Assocs. Ltd., 35 Isabella St., Toronto, engrs.

HEAVY CONSTRUCTION—LB & CA

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,

Ben Ginter Constr. Co. Ltd., Prince George, B. C., CA, $1,111,023. reconstr. Trans-Canada Hy. Cache Creek-Lemonade Flats Sect., 18.25 mi. Proj. 648. Bids Oct. 20. CD 11/2, under LB.

▲ **BRITISH COLUMBIA**—B. C. Toll Hys. & Bridges Auth., Victoria,

Peter Kiewit Sons of Canada Ltd. & Raymond International Co. Ltd., 1104 Hornby St., Vancouver, B. C., LB, $4,314,369. Bernard Inlet crossing, Second Narrows Bridge, Vancouver. Bids Nov. 29. CD 10/14.

BRITISH COLUMBIA—B. C. Govt., Parliament Bldgs., Victoria,

Emil Anderson Constr. Co., Port Hope, B. C., LB, $607,532 roadwork 3.48 mi. Horseshoe Bay-Squamish Hy., Porteau-Britannia Beach.

▲ **BRITISH COLUMBIA**—B. C. Toll Tys. & Bridges Auth. Victoria,

Western Bridge & Steel Fabricators Ltd., 145 W. 1 St., Vancouver, B. C., CA, $1,343,621, steel for bridge over west army of Kootenay Lake, Nelson. Bids July 6. CD 5/19.

▲ **Dominion Bridge Co. Ltd.,** Lachine, Que., CA, $1,500,000, supplying, installing 9 sluice gates, 9 head gates, 2 regulating gates, gate guides, stop logs, trash racks, etc. Beechwood Power Development, St. John River, Perth, NEW BRUNSWICK. New Brunswick Electric Power Comn., 527 King St., Fredericton, N. B. Awarded Nov. 25. CD 4/23/54.

▲ **Diamond Constr. Co.,** 60 Carleton St., Fredericton, N. B., CA, $3,500,000, 2 runways, taxiways, parking areas, airport at Kelly Lake, 21 mi. north of HALIFAX, N. S. Dpt. Transport, Ottawa, Ont. Bids Nov. 4. Former contract withdrawn. CD 11/16, under CA.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto,

Runnymede Steel Constr. Ltd., 3382 Dundas St. W., Toronto, Ont., CA, $3,932,000, Contr. 55-201, structural steel for superstructure of Part E of Burlington High Level Bridge, Burlington. Bids Nov. 2, awarded Dec. 6. CD 11/16, under LB.

▲ **McNamara Constr. Co. Ltd.,** 42 Industrial St., Toronto, Ont., CA, $359,755 (1 bidder) enlarging channel Welland Canal between Locks 1 and 2, ONTARIO. St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. Bids Nov. 29. CD 11/10;

Swansea Constr. Co. Ltd., 363 Rogers Rd., Toronto, Ont., CA, $698,260 (3 bidders) enlarging channel of Welland Canal between Locks 2 and 3 (Ontario);

Aiken & MacLachlan Ltd., St. Catherines, Ont., CA, $104,000 (2 bidders) enlarging channel Welland Ship Canal between Locks 3 and 4 (Ontario).

Brush Aboe (Canada) Ltd., 296 Richmond St. W., Toronto, Ont., CA, $704,177, four diesel engine generators and auxiliaries, supply, installation, St. John Pumping Station TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Awarded Nov. 30. CD 9/20, under LB.

BUILDINGS—LB & CA

McKinty & Sons, 2908 Douglas St., Victoria, B. C., CA, $608,232, JUNIOR HIGH SCHOOL, Bruce St. South Nanaimo, NANAIMO, B. C. School Dist. No. 68, Nanaimo, B. C. Bids Nov. 22. CD 11/4.

▲ **Brookfield Contr. Co., Ltd.,** 32 Inglis St., Halifax, N. S., CA Est. $1,750,000, 235 HOUSING UNITS, with services, Gagetown Army Camp, FREDERICTON, N. B. Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S. Bids Nov. 8, awarded Nov. 15. CD 10/24.

▲ **Arthur G. McKee & Co.,** 2300 Chester St., Cleveland, O., CA, $3,500,000. chemical PLANT near NIAGARA FALLS, ONT. B. F. Goodrich (Canada) Ltd., 251 King St. W., Kitchener, Ont. CD 10/11.

Wingold Constr. Co. Ltd., 2559 Eglinton Ave. W., Toronto, Ont., CA, $750,000. 310x320 ft., FOOD TERMINAL BLDG., with 2 story OFFICE section, on The Queensway, TORONTO, ONT. Independent Grocers Alliance, 4 Albert St., Toronto, Ont. Awarded Nov. 21.

▲ **Angus Robertson Ltd.,** 57 Bloor St. W., Toronto, Ont., CA, $9,500,000. 18 story, 900-room, steel Lord Simcoe HOTEL, TORONTO, ONT. National Management Ltd., 620 Cathcart St., Montreal, Que. Awarded Dec. 6. CD 11/17.

▲ **Foundation Co. of Canada Ltd.,** 1220 Bay St., Toronto, Ont., CA, $2,000,000 (4 bidders) hardwood pulp MILL, TRENTON, ONT. Hinde & Dauche Paper Co. of Canada Ltd., 43 Hanna Ave., Toronto, Ont. Bids Nov. 21. CD 11/11.

▲ **A. Janin & Co. Ltd.,** 1460 Sherbrooke St. W., Montreal, Que., LB, $1,859,000 (4 bidders) 3 story, no bsmnt., Y-shaped, structural steel, concrete, brick HIGH SCHOOL, Sherbrooke St., MONTREAL, QUE. Protestant Bd. of School Comrs., 3460 McTavish St., Montreal, Que. Bids Dec. 1. CD 11/14.

Louis Donolo, Inc., 8320 St. Lawrence Blvd., Montreal, Que., CA, Total est. $600,000. (4 bidders) substructure 150x300 ft. PLANT, Gulzot and Jeanne Manee Sts., MONTREAL, QUE. Hygrade Food Products, Inc., 5437 St. Lawrence Ave., Montreal, Que. Awarded Nov. 28. CD 11/23.

ALASKA

HEAVY CONSTRUCTION—LB & CA

▲† **Peter Kiewit Sons Co.,** 1300 Aloha St., Seattle, Wash., LB $2,675,937, est. $2,461,478, bulk fuel facilities, airfield and taxiway lighting, base rocket storage bldg., Air Force Base, Inv. 56-6, GALENA, ALASKA. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Dec. 6. CD 11/25.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **Procon, Inc.,** 1111 Mt. Pleasant St., Des Plaines, Ill., U. S. A., CA $15,000,000. design and construct REFINERY PLANT, SANTIAGO, CUBA. Texas Co., 720 San Jacinto St., Houston, Tex., U. S. A. CD 11/29.

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

▲ Bids will be taken on the following project under International competitive bidding of NATO.

FRANCE

Ministere de l'Industrie et du Commerce, Service Special des Depots d'Hydrocarbures, 85 Boulevard Montparnasse, Paris.
constr. three new sections on Marseille-Langres pipe line, to incl. installation of 12-in. pipe line, 482 kilometers long, from Saint-Remy de Provence to Langres in the following sects.
Lyon (Balan-Ain) to Langres (Palaiseul-Haute Marne) 239 kilometers long, with coating in ditch on entire lot, or coating on site in 4 sections; Orange (Sainte-Cecile-les-Vignes-Vaucluse) to Lyon (Villette d'Anthon-Isere), 183 kilometers long with coating in ditch on entire lot, or coating on site in 4 sections; Saint-Remy-de-Provence (Bouches-du-Rhone) to Orange (Sainte-Cecile-les-Vignes) 60 kilometers long with coating in ditch on entire lot or coating on site in 2 sections. Bridging over the Rhone and Durance Rivers. Est. $7,857,143. Firms interested in project must submit special questionnaire before December 17. Bids to be opened Jan. 15, 1956 and close 6 weeks later.

(Proposal Advertisements see p. 109)

IF IT'S A

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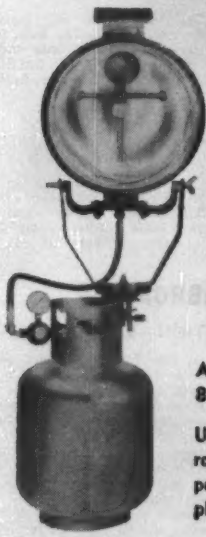

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Adjustable volume of light.

Throws beam about 100 x 250.

Lights instantly with match in —45° temperatures.

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20 EAST JACKSON BLVD.
CHICAGO 4, ILLINOIS

Unit Prices

Sanitary Sewer Project for Kansas City, Missouri

On his low bid of $738,089, J. A. Tobin Construction Co., Kansas City, Missouri, won the contract awarded by the Department of Public Works, Kansas City, Mo., for a three-section sanitary trunk sewer in a newly annexed territory in Clay County, Mo. This is 5½% under the Engineering Division's estimate of $781,188. Stanley C. Palmer is City Engineer.

The contract covers the construction of 20,928 lin ft pipe sewer, 12 in. to 66 in. in diameter, with appurtenances in North Kansas City, Avondale, and Kansas City, Clay County, Missouri.

Five bidders on Section A and four on Section B include three bidders on the entire project, Sections A, B, and C.

Section A is predominently rock ditch, and Section C is on the slope of a levee.

Preference is given to materials, products, supplies and all other articles produced, manufactured or grown within the State of Missouri.

The material specifications require an "Enameline" or a heavier portland cement lining protected by a bituminous seal coat and applied to clean metal surfaces of all cast iron pipe with mechanical joint.

The cement mortar lining for 12 in. and smaller size pipe has to be 1/16 in. thick, for 14 in. to 24 in. pipe it has to be 1/8 in. and for 30 in. pipe 3/16 in. thick.

All reinforced concrete pipe is circular with circular reinforcement with tongue and groove joints, rubber gasket (Riblock), or steel and rubber joints. Riblock gaskets are installed on pipe with joints cast for this purpose. The rubber for this continuous ring gasket has to contain not less than 60% by volume of first grade natural crude rubber, the remainder being pulverized fillers. The minimum tensile strength requested is 1,700 psi, and the elongation at rupture has to be such that 2 in. gauge marks shall stretch to a minimum of 8 in., and the permanent set does not exceed 14% of the original gauge length.

Reinforced concrete sewer pipe passing under the railroad track in Section B and the highway in Section C is carried in tunnels lined with standard sectional steel liner plate.

Portland cement concrete must test at a compressive strength of 3,000 lb per sq in. after 28 days. Reinforcing steel shall be the New Type Deformed Bars for Concrete Reinforcement.

Prevailing wage rates include $2.80 to $3.40 for skilled labor, $2.325 for semi skilled and $2.225 for common labor.

The three bidders on the overall project are:

1C J. A. Tobin Constr. Co., 3701 Rainbow Blvd, Kansas City, Mo. $738,089
2 Torson Constr. Co., 1890 Woodswether Road, Kansas City, Mo. 869,435
3 Clarkson Constr. Co., Box 4924 Station J, 4133 Gardner Ave, Kansas City 1, Mo. 988,681

Bids: 10-7-55 Items:	Unit	Quantity	Unit Prices 1C	2
Section A, Rock Creek				
Riblock, 36"	lf	3,740	$25.00	$37.50
extra strong	lf	1,420	30.00	35.00
Manholes, std, style III	ea	18	1,500	1,400
X, 4'	ea	6	750.00	500.00
X, 5'	ea	1	800.00	800.00
spec, RC	ea	2	1,900	1,550
Pipe encasement, PCC	cy	6	45.00	75.00
Apron drain, RC	lf	37	9.00	10.00
Excav drain ditch	cy	130	0.50	3.00
Limestone, crusher run, road surface	ton	400	4.00	4.00
Pipe cradle, stab agg	cy	100	7.00	10.00
Lumber left in trench	bf	10,000	0.01	0.01
Contingencies, Sec A	ls		8,000	8,000
Sub-total Section A			180,168	231,060
Section B, Rock Creek and Hillside				
Riblock, 36"	lf	47	$25.00	$48.00
42"	lf	1,160	47.50	81.45
66", ext str	lf	1,563	50.00	53.70
Manholes, spec RC	ea	8	2,700	2,600
No. 10	ea	1	3,300	4,000
Tunnel, 96", liner plate	lf	101	145.50	200.00
RC, structural	cy	114	215.00	130.00
Bearing pile, stl	lf	220	6.00	10.00
cut off	lf	40	6.00	10.00
Excav, uncl, outfall & channel change	cy	8,400	0.25	1.00
Stone riprap	cy	400	12.00	6.00
Pipe cradle, stab agg	cy	150	7.00	10.00
Backfill, selected, sewer subgrade	cy	500	1.05	3.00
Limestone, crusher run, road surface	ton	250	4.00	4.00
Contingencies, Section B	ls		8,000	8,000
Sub-total Section B			217,566	265,891
Section C, Hillside, Lateral "D" and "E"				
Pipe, stub, VC, 8"	ea	21	6.00	25.00
10"	ea	8	8.00	35.00
12"	ea	2	14.00	50.00
15"	ea	1	18.00	75.00
18"	ea	1	22.00	75.00
sewer, VC, 12"	lf	276	6.95	6.60
ext str	lf	1,824	12.50	13.75
21"	lf	703	14.50	23.80
RC, 21" ext str	lf	712	16.50	16.10
Riblock, RC, 15"	lf	899	13.00	14.20
Pipe, sewer				
18" CI mech joint	lf	328	18.25	14.00
18" RC rubber & steel jrt	lf	1,634	16.00	16.90
24"	lf	760	20.00	23.40
30" Inertol	lf	3,648	21.00	22.55
36", C-76-54	lf	206	29.25	45.45
36", C-76-54	lf	2,048	25.00	25.95
Manhole, spec RC, 17, 33, 34	ea	3	2,100	1,400
13, 29	ea	2	1,400	1,400
std, type I, pressure cov	ea	16	1,450	1,130
II RC, light cov	ea	7	1,200	1,250
hvy cov	ea	4	1,000	1,100
pr cov	ea	2	800.00	800.00
Drop manhole, spec RC, hvy cover	ea	1	3,600	3,500
std style X, 4', light cov	ea	13	750.00	500.00
Bkfl, selected, sewer subgr	cy	1,000	1.40	4.00
Pipe encasement, PCC	cy	70	40.00	75.00
Pipe cradle, stab agg	cy	100	7.00	12.00
Sod levee slopes	sy	22,000	0.45	0.40
Limestone, crusher run, road surface	ton	50	4.00	8.00
Tunnel, 60", with liner plate	lf	160	77.36	160.00
Lumber left in trench	bf	10,000	0.01	0.01
Contingencies	ls	.....	15,000	15,000
Sub Total, Section C	..	.....	340,355	372,484

Time to complete: 140 working days
Liquidated damages: $300 per calendar day

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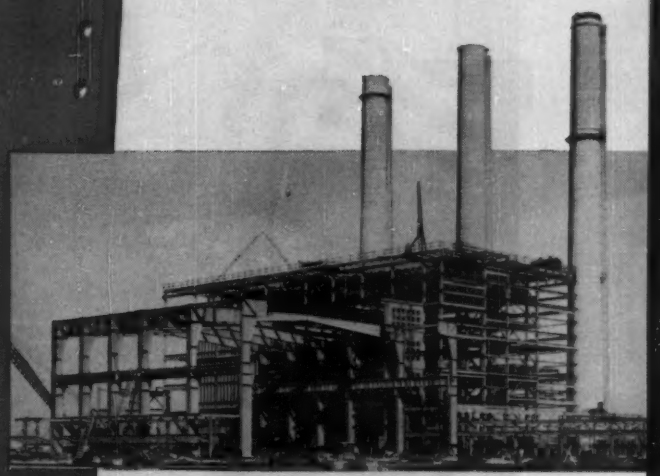

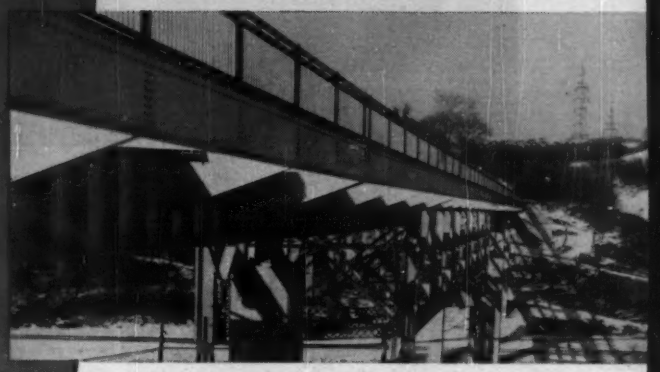

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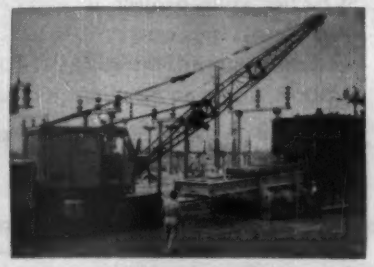

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The nation's largest acceptable means of land transportation, the unit measures over 106 feet long, 12 feet wide, 17½ feet high and weighs 150 tons just by itself!

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If you're interested in Mr. Hake's suggestion, talk with a Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

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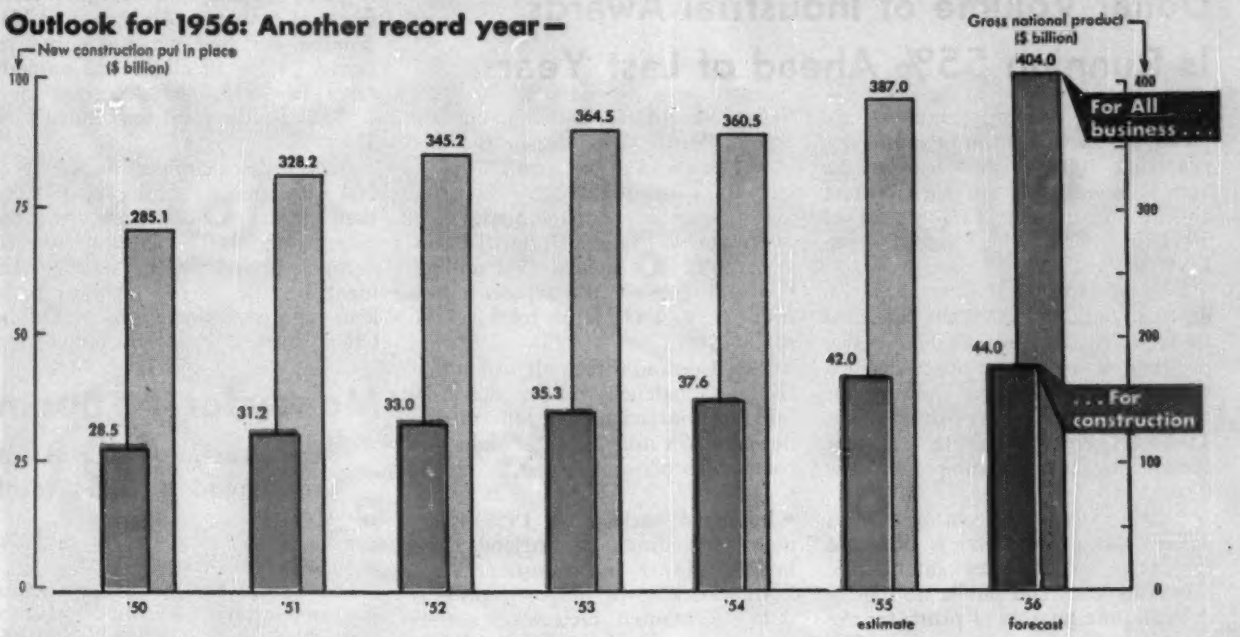
Outlook for 1956: Another record year—



THE LONGER LOOK:

The construction boom seems likely to continue through 1956. Homebuilding is the only weak spot in the picture

Business has been rolling at such a clip in the last few months that the momentum alone would be enough to carry the current boom well into 1956. And the few rough spots that may develop do not seem likely to keep 1956 from being another record year—for business generally and for construction.

A year ago even the most optimistic forecasters did not look for the surge of business that has run through 1955. Gross national product—the sum of all goods and services produced and the most comprehensive measure of the economy's performance—soared 9% in only 12 months. The nation's output in the third quarter of 1954 was at an annual rate of $358.8 billion; by the third quarter of 1955 it was $391.5 billion. The fourth quarter is running even higher.

The economy should be producing at a rate of over $400 billion through all of 1956, with the total of the year about $404 billion. New construction put in place will amount to $44 billion, according to government estimate, compared with $42 billion in 1955.

Once again, as in every year since 1951, construction will not only set a new all-time record but will also claim a slightly larger percentage share of the nation's dollar spending.

• **Nearly everybody benefits**—One reason for expecting another boom year for business is that virtually every sector of the economy—except agriculture—is taking part in the current spurt of prosperity.

The outlook for spending by consumers, business and government in 1956 shapes up like this:

• **Consumers**—More than half the 12-month rise in gross national product through the third quarter of 1955 was in consumer spending. Consumption of nondurables and spending for services have both risen 5% to 6%, but the rate of spending on durables shot up $8 billion (27%). This rise, reflected in the production in 1955 of a record 8,000,000 autos, was due largely to buying on credit. Tightening of consumer credit and lack of consumer enthusiasm for '56 model cars could push spending on durables down.

But there are good reasons for expecting consumer spending on nondurables and on services to rise more than enough to offset this dip. Consumers will have more money. Another round of wage increases is almost certain in the spring, some major labor agreements already providing automatic boosts. And an income tax cut, favored by leaders of both parties in Congress, would leave more of the higher incomes for consumers themselves to spend.

• **Business**—Capital spending by business will set an all-time record in 1956, according to preliminary plans reported in a survey conducted by the McGraw-Hill Department of Economics. These plans are now showing up in awards for industrial construction, which have been running 55% over the corresponding 1954 figures (page 100).

• **Government**—Just what the federal government will spend won't be clear until Congress looks at the President's new budget in January. But it isn't likely to be tightfisted in an election year. Prospects are for federal spending about the same as in 1955, with security spending down a little, other spending up a little. State and local spending for all purposes may be up about 5%. And total public construction is expected to rise 10%.

• **Rough spots**—The boom itself is one source of concern. Many industries—like steel and some machinery groups—are running at or near capacity and are booked solid with orders for months ahead. Many types of labor, especially skilled labor, are scarce. Serious supply shortages can easily breed inflation through the bidding up of prices and the scare buying that comes when people expect more price increases. This has kept credit authorities trying to hold a tight rein on the money supply.

(*B&F continued on page 100*)

Dollar Volume of Industrial Awards Is Running 55% Ahead of Last Year

Industrial building contracts are piling up one of the most impressive peacetime totals in history. For the first 11 months of this year, contract awards are running 55% ahead of 1954 in dollar value, according to ENR reports.

The $2,640.8 million worth of industrial building contracts awarded through Nov. 30 bought 11% fewer plants than '54. Major reason for this seems to be that last year, industry was making additions to existing plant. This year the trend is to add new capacity by building completely new plants.

Nearly 75% of the gain over '54 in dollar value of contracts is tied into the process industries (aluminum, chemicals, etc.) and public utilities.

While the number of plants for the process industries went up only 7% this year, the dollar value of the contracts for the plants climbed 58% over 1955. The 11-month total is $1,034.9 million, as against $655.9 million in '54.

Dollar value of public utilities' contracts has soared spectacularly. Last year's 11-month dollar total for this category was $287.1 million. This year, it is $644 million, up a fabulous 124%.

Other types of industrial building have turned in equally fantastic gains. For example, contract awards for automobile plants totaled $34.5 million in the first 11 months of '54. For the same period this year, contracts skyrocketed to $173.7 million, for a gain of 403%.

Industries such as machinery, metals refining, textiles, electronics (including radio and television) and foundries are running ahead of '54 in the race for new capacity.

Others haven't been able to maintain last year's expansion pace. Among the laggards: food industries, automotive service, aircraft, railroads.

• **Where does the money go?**—Industry has been spending most of its expansion money this year in two regions—the Middle West and Middle Atlantic—which together account for more than half of the total.

The Middle West leads in dollar value of contracts with $776 million for the first 11 months, up 87% over '54. The Middle Atlantic region takes second place easily with $689 million, up 102% over '54.

The $521 million in industrial building contracts reported for the States West of the Mississippi put that region third. (Contracts in the area are 21% ahead of last year.)

With a substantial 41% boost in awards over last year, the South takes over the No. 4 spot. Industrial contracts in the South total $381 million.

The Far West also reports a gain over '54. The 11-month total is $196 million, up 27%.

New England is the only region that has not matched '54 in industrial building contracts. There, the total is down to $78 million, 14% under the comparable period last year.

• **Industrial backlog up 19%**—Every region, including New England, has a brighter future for industrial work. ENR's backlog of proposed projects shows substantial increases for four regions (New England, South, Middle West and Far West) and moderate gains for two others (Middle Atlantic and West of the Mississippi).

The ENR backlog of industrial building has climbed 19% from Nov. 30, 1954 to Nov. 30, 1955.

The West of the Mississippi region tacked a modest 12% onto last year's total to reach a new high of $4,592 million. Next biggest backlog belongs to the Middle West, which moved up 25% to a new total of $3,496 million.

Proposed industrial projects in the South account for $2,434 million, 28% more than a year ago. Others: Middle Atlantic, $1,786 million, up 9%; Far West, $1,113 million, up 26%; and New England, $348 million, up 46%.

Ohio Tax Official Warns: Some Counties May Go Broke

Some local governments in Ohio are in such serious financial trouble that they are "practically bankrupt," Fred F. Becker, chief of the County Affairs Division of the State Department of Taxation, asserted last week.

Becker said the Ohio General Assembly will have to find some method of solving the financial problems that are harassing "better than half the counties of the state."

Increases in population and demands for more governmental services are outstripping the increases in revenue, Becker said. The pattern is the same in cities, counties and school districts, according to the tax official.

A 1934 constitutional amendment revising the real estate tax structure is partly responsible for the present financial problems, Becker stated. He pointed out that while counties received 24.2% of all general property taxes in 1915, they received only 13.32% for the fiscal year ended June 30, 1953.

Becker also sharply criticized "general indifference of the citizens to their elected officials, particularly the taxing officials." He also warned against a breakdown in county government because of the financial problems, and said the effects would be felt at every level of government.

Money for the Boom

Construction capital is far ahead of 1954 total

The money still is flowing into the construction coffers.

During the first 49 weeks of this year, new capital to finance construction added up to $12.6 billion, 19% ahead of last year, and already above the 1953 and 1954 totals.

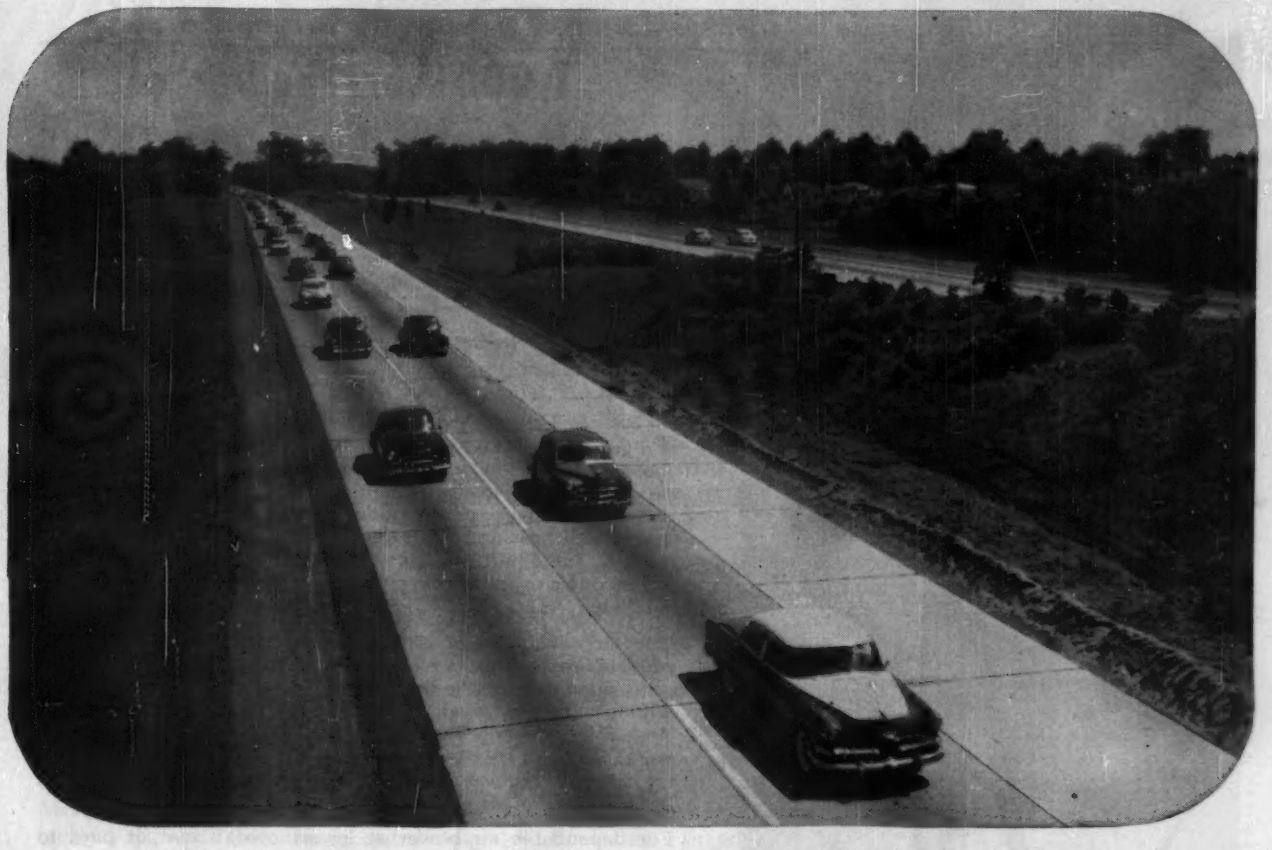
Corporate security sales show the sharpest increase over '54. They're up 39%. This $3.5 billion in construction money is paying for the biggest peacetime industrial building boom on record. Industrial building contract awards are up 52% over 1954, on the basis of ENR figures.

Although state and municipal bond sales are 10% below 1954 on a year to date basis, these sales have been large in recent months. This trend is continuing in December. However, this month's total probably will not match the November figure.

• **Tight money**—One big reason is that money is very tight. Last week, for instance, the New York State Thruway Authority sold $50 million of state-guaranteed bonds at a net interest cost of 2.74%, the highest price paid so far by the authority on this type of security. Back last July, State Comptroller Arthur Levitt refused to sell a similar issue on which the highest bid would have meant an interest cost of 2.79%.

On the same day the New York Thruway sold its bonds, Connecticut decided to postpone a $100-million offering for its expressway which had been scheduled for Dec. 13. Its reason: "The very unfavorable condition of the tax-exempt bond market at the present time."

The Connecticut Turnpike was originally estimated to cost $398 million. So far, there has been only one financing—a $100-million issue back in May 1954.



Concrete Paving Record Set in Widening Garden State Parkway

Only seven weeks were needed to widen the 13½ mile toll-free concrete section of New Jersey's Garden State Parkway from four to six lanes. A third 12-ft. lane in each roadway was placed at an average of 5,080 lin. ft. per day. The 24-hour record of 7,980 ft. with one finishing train is believed to be a world record.

The achievement is especially remarkable because traffic on the busy expressway was not detoured. In addition to placing 177,133 sq.yd. of concrete, the contractor ripped up existing shoulders, completed necessary grading, installed drainage, excavated 75,000 cu.yd. of roadway and placed 50,000 cu.yd. of granular subbase.

This performance demonstrates conclusively that high-quality concrete pavement can be placed as fast, or faster, as less durable material.

Widening existing roads or paving new ones with concrete offers many advantages in addition to rapid placement. Concrete usually costs less to build than other pavements *when both are designed for the same traffic.* Concrete lasts at least twice as long and needs much less maintenance. Only concrete gives true ***low-annual-cost*** service. Moreover, concrete pavement is much safer. It is skid-resistant, wet or dry, and its light color provides better visibility and greater safety at night, when the accident rate is highest.

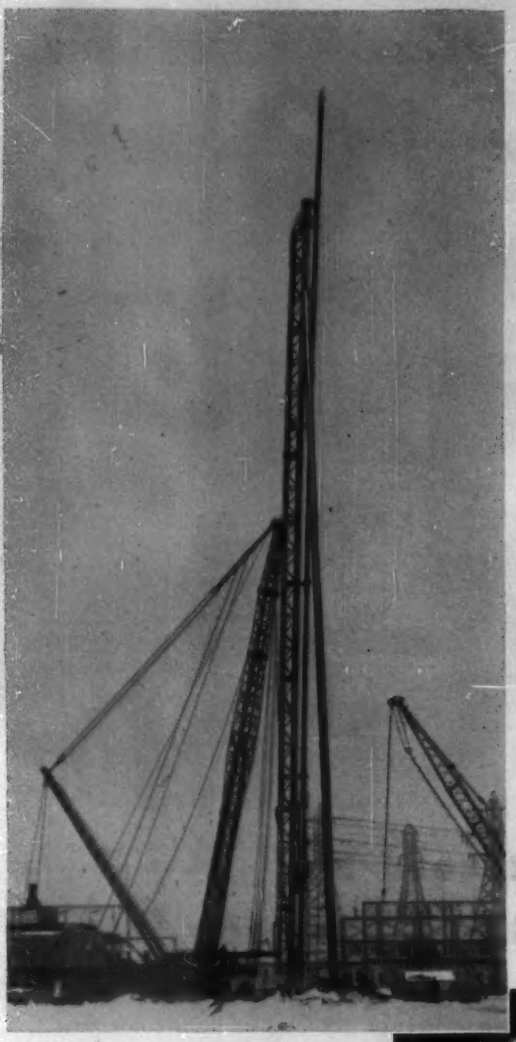
Write for free information about widening or resurfacing pavements with concrete. Literature distribution is limited to the U.S. and Canada.

PORTLAND CEMENT ASSOCIATION
Dept. A12c-17, 33 West Grand Ave., Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

Top photo shows finished third lane in each roadway before being opened to traffic. Right: Core being removed from a new slab tested 4,900 p.s.i. When original lanes were built in 1950 core from adjacent slab tested 5,000 p.s.i. New core from the same slab recently tested 6,100 p.s.i., proving that concrete pavements grow stronger with age.

1,000 horsepower of Air-Cooled Compressors help drive

200 FT. PILES

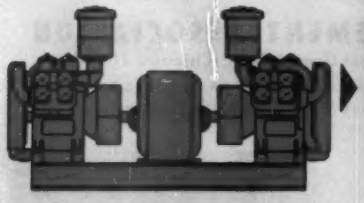


This pile driving and jetting rig, designed by Raymond engineers, is one of the tallest in existence, with a 112 ft boom and 220 ft jetting pipe which had to be equipped with an aircraft warning light.

To get down to bed rock on a large power plant construction job, the Raymond Concrete Pile Company had to sink 24" steel pipes 180-ft long to a total depth of 200 ft. In order to start and drive these king-size piles, air and water jetting was first used to sink a 30" casing 50 ft down through the relatively soft overburden. The 180-ft pile pipes were then inserted in the casing, driven down to solid rock, cleaned out by jetting and filled with concrete.

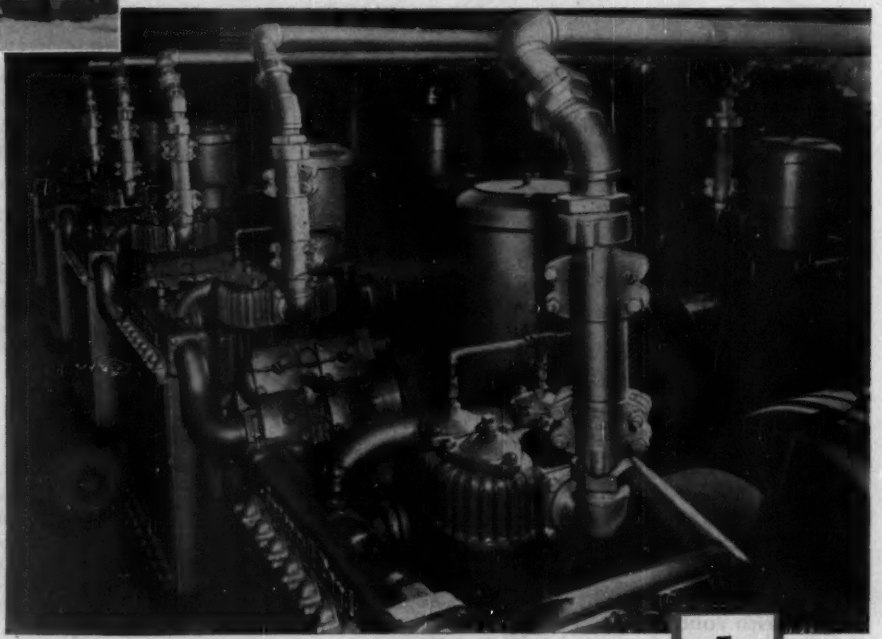
The large volumes of air needed for the jetting work were provided, at 100 psi, by ten Ingersoll-Rand Type 40 compressors, mounted back-to-back in pairs, each pair driven by a 200-hp motor as shown below. These compact, air-cooled two-stage compressors proved well suited to this type of construction work. They are easy to move and install, give wide flexibility of air capacity, require no water connections and can be used in the coldest weather without danger of freezing.

For dependable air power at lowest overall cost, it pays to specify Ingersoll-Rand compressors. They are available for handling air or gas at any pressure or capacity. Ask your I-R representative for further details.



Ten Ingersoll-Rand Type 40 two-stage compressors supplied 100 psi air for the jetting work on this 200-ft pile driving job. They are mounted back-to-back in pairs, with a 200-hp driving motor direct connected to each pair of compressors. These I-R units operated a total of 18,000 machine hours without a single breakdown.

Ingersoll-Rand air-cooled compressors are available in units of ¼ to 250 horsepower.



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Meyner Vetoes Bill to Tax Delaware Bridges in Jersey

Gov. Robert B. Meyner of New Jersey last week vetoed a bill which would have charged the State of Delaware an annual license fee for use of New Jersey land as approaches to the Delaware Memorial Bridge. Meyner said the bill "apparently was prompted by plans tentatively proposed by the State of Delaware for the use of a sum of $130 million to be derived from the toll revenues for improvements within the State of Delaware" (ENR Oct. 13, p. 80).

• **Retaliation**—Meyner said that the bill seemed to be a form of retaliation, and that a license fee would really be a property tax on violation of the agreement between the two states made in 1946 before the bridge was built.

In Delaware, Governor Meyner's action was hailed by Charles T. Gallagher, Jr., general manager of the Delaware Memorial Bridge. Said Gallagher: "I'm very happy that Gov. Meyner recognized the expensive highway problem that was generated by the tremendous traffic using the bridge."

The Latest Package Deal: Redecorating on the Cuff

Three major organizations in the home-decorating field have just worked out a plan by which home owners can get decorating done on the cuff. The plan, called Decorating Credit, will allow the borrower to get all materials plus a contractor's services in a package deal. There will be a small downpayment and monthly installments.

The three co-operating groups are: Retail Paint & Wallpaper Distributors of America, Inc.; National Paint, Lacquer & Varnish Association; and Painting & Decorating Contractors of America.

They are convinced that many new customers would be created by this plan, because surveys show that many people who are unable to pay for redecorating in cold cash would do it on credit. The promoters cite statistics to show that 30,000,000 U. S. homes have not been painted for 10 years.

AMF Plans Underground Plant

American Machine & Foundry Co., New York, has taken an option on about 2,000 acres of land near Huntsville, Ala., and is studying the possibilities of an underground plant there. AMF's chief executive, Morehead Patterson, says there are estimates that "underground plants can be excavated, finished, and maintained at costs lower than those for comparable plants above ground."

Business Briefs

• **Plywood prices cut**—Prices of Douglas fir plywood interior sheathing were cut about 5% last week at major mills. New price at the mill is $116 per thousand sq ft for the key ⅜ in. interior sheathing, compared with $122 previously. That's the second cut in the past few weeks.

• **Merger planned**—Neptune Meter Co. and Eastern Industries, Inc., will merge if stockholders approve directors' plans. Neptune has acquired several other meter and precision-instrument companies during the past year.

• **J-M expands**—Johns-Manville Corp. plans to spend about $25 million for expansion in 1956, according to President A. R. Fisher. In addition to previously announced projects, J-M plans a 70,000 sq ft plant at Marrero, La., which will make floor tile.

• **Nuclear center**—Combustion Engineering, Inc., plans a $5-million nuclear engineering and development center in Windsor, Conn., to make "light" nuclear-power components. A plant at Chattanooga, Tenn., is now close to completion. It will make "heavy" components.

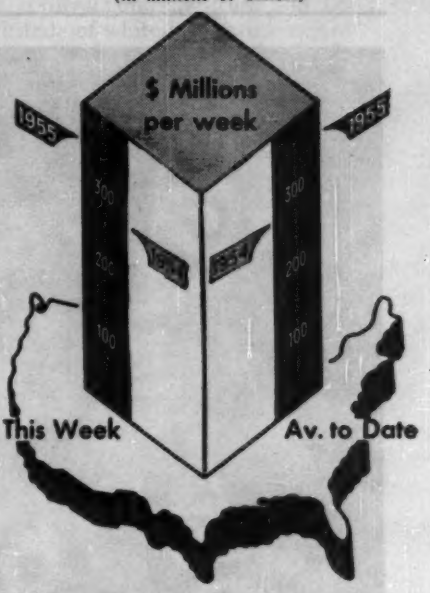
• **Oliver and Waukesha**—Oliver Corp., now reported to own about 11% of the outstanding stock of Waukesha Motor Co., is said to be increasing its holding.

• **New cement company**—Republic Cement Corp., a new firm, plans a $6.5-million plant at Drake, Arizona, to make 2,500 bbl of gray cement and 750 bbl of white cement daily.

• **Fabricated structural steel** bookings through the end of October were 41% above the same period last year, according to the American Institute of Steel Construction. Bookings in October were about 309,000 tons, while shipments were 284,000. Shipments were 10% above last year, and the second highest month so far in 1955. Of the total backlog of 1,900,000 tons at the end of October, less than 1,100,000 tons were scheduled for fabrication through next February.

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

(millions of dollars)

	This Week	Cumulative 50 wks 1955	1954	% chge
By Ownership				
Federal	$22.2	$1,594.5	$1,234.8	+29
State and municipal	151.4	5,153.9	4,774.3	+8
Total public	173.6	6,748.4	6,009.1	+12
Total private	175.2	11,238.3	7,862.3	+43
U. S. Total	$348.8	$17,986.7	$13,871.4	+30
By type of work				
Waterworks	$9.1	$299.4	$237.9	+26
Sewerage	10.4	378.3	377.9	+0.1
Bridges	39.8	511.3	485.7	+5
Highways	44.4	2,051.2	1,815.7	+13
Earthwork, waterways	8.0	525.1	302.3	+74
Buildings:				
Public, excl. housing	44.9	1,672.6	1,690.3	−1
Public housg.	1.2	244.2	249.5	−2
Private housg.	77.5	5,974.6	4,131.9	+45
Commercial	21.4	1,598.5	1,378.9	+16
Industrial	66.7	2,775.5	1,812.9	+53
Unclassified	25.4	1,956.0	1,388.4	+41
U. S. Total	$348.8	$17,986.7	$13,871.4	+30

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

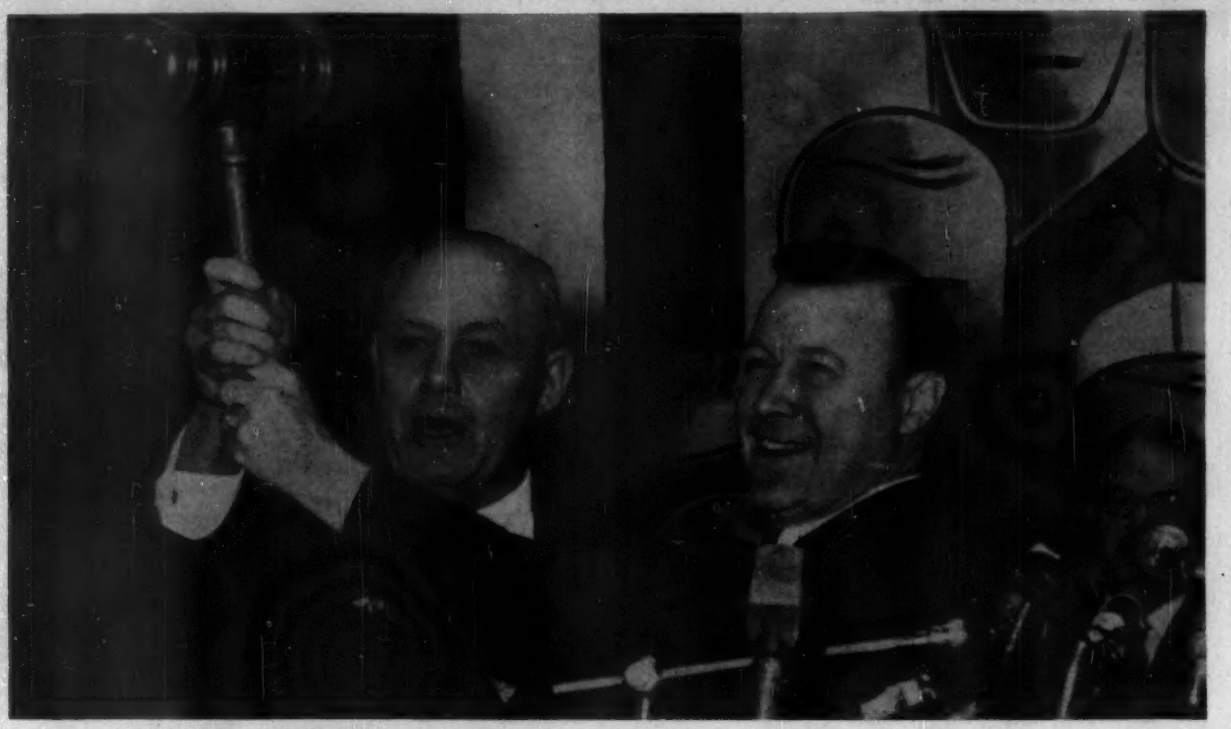
(millions of dollars)

	Week of Dec. 8	Cumulative 49 wks 1955	% Chge '54-'55
Corporate securities	$91.4	$3,507.7	+39
State and municipal:			
All except housing	81.4	4,579.5	−10
Housing	...	93.0	+2
Federal loans	1.4	123.8	+12
Federal aid	...	853.5	+27
Total nonfederal	$174.2	$9,157.5	+8
Federal appropriations:			
In U. S.	...	$3,379.7	+63
Outside U. S.	...	84.6	+155
Total new capital	$174.2	$12,621.8	+19

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	12/8	672.94	323.48	141.07
	12/1†	673.13	323.57	141.11
Building cost	12/8	478.51	258.67	136.02
	12/1†	478.70	258.77	136.08
Volume	Nov.	561	228	162
	Oct.	628	255	182

† Official ENR Indexes for December



George Meany and Walter Reuther, under the emblem of fusion, convene the joint convention,

United Labor Proves the Strength

Of Politics and Power

"We offer our hand to men and women of good will all over America, and we say, let us work together . . . in building a better tomorrow in which people everywhere . . . can live at peace and freedom . . . we are joining together, not to create a powerful economic pressure group or political pressure bloc (but to help) in the building of a finer America for all people." (Reuther)

". . . we have a duty as citizens to take part in shaping the policies of our government." (Meany)

"We have said very clearly that we are going to work within the two-party system, endorsing candidates, not based upon their party label, but based upon the competence and integrity of the individual." (Reuther)

"No one—no one can tell the American worker how he has got to vote . . .". (Meany)

In the brief span of four days last week, the AFL-CIO proved to be a vigorous and promising youngster in the labor movement.

Assembling on December 5 in New York City for its founding convention, the new labor federation—15,000,000 strong and largest in the free world—began to lay the foundations of a united labor movement. As the merger unfolded, the hopeful, skeptical and critical eyes of the world watched anxiously to see if unity could be achieved.

• **Big test**—The big test, and one in which the building trades were deeply involved, came on Wednesday, when the Industrial Union Department (stronghold of the old CIO and newest of the six departments within the new federation) was formed to promote the interests of industrial unions.

All week long, background rumblings of internal quarrels had been heard unofficially on the convention floor. The merger apprehensions of many of the craft unions, anxious to protect their jurisdictions from being whittled away by industrial unions, still persisted. Dave Beck, president of the powerful and sprawling teamsters union, was publicly focusing attention on conflicting rumors about admission to the new department. For the first time during the convention, the atmosphere was tense. And then it exploded—into complete unanimity and the convention's biggest victory for those who've led the long and tireless search for unity.

In 30 fast moving minutes, 71 unions—including 10 from the building trades (chart p. 107)—joined the new department, bringing a total of 7,289,320 members, or nearly half the membership of the new federation. A constitution was adopted and officers (CIO's Walter Reuther and IUE's Jim Carey) were unanimously elected. Full approval was given to a proposal (later adopted by the CIO-AFL convention) that a permanent committee, drawn equally from the Building Trades and Industrial Union Departments, be established to adjust conflict of interest between the two departments.

• **No power bloc**—Behind the victory lay the able, firm and conciliatory leadership of president George Meany, who had ruled that unions could come into the new department only to the extent they were industrially unionized. Behind it, too, was the dynamic

in which . . .

# of Unity

and infectious merger enthusiasm of Walter Reuther, and the singleness of purpose that had caused a painter the week before to change his vote to make AFL approval of the merger unanimous.

In adopting the presidency, Reuther made it clear that the new department is but another subordinate body of the AFL-CIO, not a "political power bloc." Although designed to facilitate the growth of unions, wholly or partially organized on an industrial basis, it intends to make, "an important and constructive contribution to the united labor movement."

To most observers, the stampede into the new department looked like a good solution to a number of problems. It did not weaken the Building Trades Department and at the same time gave a number of the building trades with industrial interests a chance to protect their jurisdictions. Not only do they now have a common forum with industrial unions for adjustment of their differences (by voluntary merger or otherwise), but all members of the new department are constitutionally placed within the operation of the CIO organizational disputes agreement for settlement of jurisdictional conflicts.

• **Heavy agenda**—This brief diversion into the internal affairs of the new department did not interrupt the steady pace with which the 1,465 AFL-CIO delegates ticked off their heavy agenda. In between 10 major addresses, they found time to seek divine guidance from three religious leaders, to receive two governors and one U. S. Senator, to listen to songs from "Pins and Needles" and to consider and adopt 53 lengthy resolutions covering nearly all phases of American life.

Through it all ran a natural and common thread advancing the cause of those who work for wages. Emphasis was on organization of the unorganized and on political action, on tolerance and freedom. Although President Meany warned that the AFL-CIO would seek to fulfill its hopes and aspirations in a "militant" rather than a "milk toast" manner with "every legal means" at its command, he and Reuther and the delegates themselves repeatedly reaffirmed the new federation's dedication to the public good, its awareness of the heavy responsibility it assumes, and its concern for the welfare of the nation and all its citizens.

• **Organization**—Organization of the millions of unorganized workers was recognized as the key to a successful labor movement.

Now planned is what Reuther describes as "an organizational crusade such as this country has never seen" to double union membership within the next few years. Former CIO affiliates have already pledged $4-million to the drive. Listed as principal targets are the chemical, textile, paper and construction industries, and the multitude of white collar workers who are employed in offices throughout the nation.

The campaign to sell the AFL-CIO to non-union workers will take shape on many fronts. Adopted as its basic foundation is "concrete explanation and demonstration (to the unorganized) of the benefits of joining and supporting strong democratic trade unions." Collateral efforts will embrace activities in the fields of public relations, community services, and expanded use of union labels—to all of which the convention devoted considerable thought.

• **Politics**—And the effort to organize will also be felt in the political field—the most controversial of all.

High on the federation's list of specific targets are repeal of right to work laws and changes in the Taft-Hartley Act.

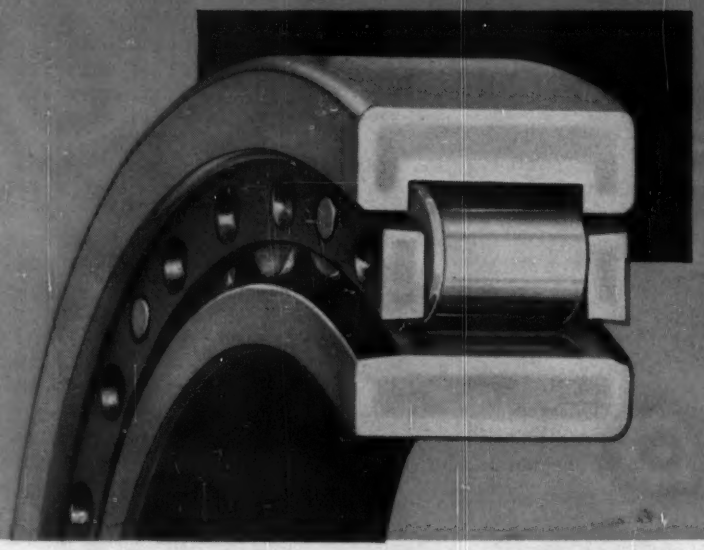
Disavowing any intention of departing from the present two party system and reaffirming its firm belief in "our democratic form of government" the AFL-CIO looks forward to a program of political education through which every member will become acquainted with the current issues and the voting records of elected officials.

Adopted as its policy is that "of supporting worthy candidates regardless of their party affiliation."

• **Economics**—On the economic front, the AFL-CIO agreed that "the healthy functioning of our economic system is of paramount concern to American workers." It expressed the belief that the nation's power to con-

L. R. RAFTERY'S painters union contributes members to Reuther's new department.

Bower straight roller bearings carry maximum loads!



TWO-LIP RACE INCREASES RIGIDITY— IMPROVES ROLL ALIGNMENT

Examine the cutaway view of the Bower straight roller bearing, shown above. It is important to note particularly the two parallel lips made integral with the outer race. These lips or shoulders provide a rigid, durable construction—keeping the rolls in proper alignment.

Built of highest quality materials, Bower straight roller bearings have proved themselves capable of standing up day in and day out under maximum loads and the most rugged conditions—with virtually no maintenance whatsoever. They are used extensively in such fields as automotive, earthmoving, farm equipment and heavy machine tool. For the aircraft industry, Bower builds straight roller bearings—especially designed for high-speed, high-temperature operation—which are used by virtually every producer of jet engines.

Whatever you manufacture, you'll build a better product with Bower roller bearings. Write to Bower today. A Bower engineer will give you full details of the complete Bower line.

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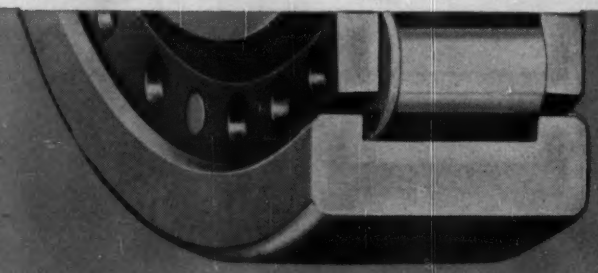

A COMPLETE LINE OF TAPERED, STRAIGHT AND JOURNAL ROLLER BEARINGS

Building Trades Add to Industrial Department

Union	Total Estimated Membership	Members Now In Industrial Dept.	Balance Of Membership
Boilermakers	150,000	30,000	120,000
Carpenters	804,343	350,000	454,343
Electricians	630,000	275,000	355,000
Iron Workers	139,462	55,000	84,462
Laborers	433,125	60,000	373,125
Marble Workers	6,500	1,500	5,000
Operating Engineers	200,000	52,000	148,000
Painters	220,000	12,000	208,000
Plumbers	240,720	50,000	190,720
Teamsters	1,231,000	400,000	831,000
Totals	**4,055,150**	**1,285,500**	**2,769,650**

sume must keep pace with its growing power to produce. As a means of meeting that necessity, as well as a means of enabling workers "to share adequately in the fruits of industrial progress," the new federation found a need—and a justification—for higher wages, a shorter work week, gerater security and better working conditions.

In its premise that an expanding economy is essential to a high level of employment and improved standards of living, the AFL-CIO also found the need for a continuing public works program that would simultaneously serve some of the nation's pressing needs. Among its recommendations were expanded federal aid for school, highway and hospital construction through direct federal programs, as well as grants and loans to state and local governments. An ambitious housing program for the construction and financing of 2,000,000 new dwelling units a year, geared to the needs and means of the elderly and of low and middle income groups and subject to prevailing wage requirements, was also proposed.

• **Morality**—Through its colorful week of impressive progress, the AFL-CIO espoused the principles of freedom and morality and took to task at every turn the evils of corruption and communism. Unanimous adoption of a comprehensive and stringent set of regulations for administration of union and welfare funds and Walter Reuther's moving attack upon those who engage in "trade union cannibalism" left no room for doubt that the AFL-CIO will vigilantly strive to keep its house in order. Still to be decided are the validity of alliances, such as those Dave Beck and his aggressive teamsters have just concluded with the estranged longshoremen and smelter worker unions, where the outside partner is in itself denied AFL-CIO affiliation on the basis of corrupt or communist denomination. And as an eloquent demonstration of personal freedom, members of the teamster's Local 445 appealed to convention delegates to help in keeping it free from intimidation and corruption.

As the merger unfolded, the strength of unity steadily increased. By Friday, Mike Quill, who had attacked the merger so vigorously, announced that his transport workers had voted on the executive level 32 to 7 to remain within the ALF-CIO. The presidents of two of the independent unions—railroad trainmen and locomotive engineers—had attended the convention, affording hope that they too might join. And two former AFL and CIO unions—amalgamated meat cutters and united packinghouse workers—announced their own merger.

• **Faith in the future**—Vigorous efforts were made to put both the fear of power and internal quarrels within the right perspective. In the closing moments of the convention, AFL-CIO vice president Charles MacGowan, president emeritus of the boilermakers, warned that man has always been "afraid of the unknown" and urged affiliated unions to operate —not on suspicion—but on faith in themselves and in others.

And in one of the best of the convention speeches, Omer Becu, president of the International Confederation of Free Trade Unions, pointed out that within the structure of the AFL-CIO "there will be a variety of views on many issues; but on the crucial ones there will be unanimity of outlook and unity of purpose."

OFFICIAL PROPOSALS

Bids: January 9, 1956

Construction of Water Mains

ADVERTISEMENT—NOTICE TO CONTRACTORS
WATER MAINS AND APPURTENANCES FOR
EXTENSION NO. 1 TO WATER DISTRICT NO. ONE
IN THE
TOWNSHIP OF SPARTA AND COUNTY OF SUSSEX
SPARTA, NEW JERSEY

Sealed bids for the construction of water mains in Main Street and Morris Lake Road will be received at the office of Township Committee in the Town Hall, Sparta, New Jersey until 8:00 P. M., Eastern Standard Time on the 9th day of January 1956 and then at said office publicly opened and read aloud.

The work will consist of 3,030 feet of 8 inch pipe and 1,200 feet of 6 inch pipe with valves, hydrants and appurtenances and the unloading, hauling and installing of the above pipe, valves and hydrants and appurtenances, making connections to existing mains and house connections.

The Information for Bidders, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of the Clerk, of Township Committee, Township of Sparta, New Jersey, and at the office of Keis & Holroyd, Consulting Engineers, 257 Broadway, Troy, New York. Copies thereof may be obtained at the said office of the Clerk, of Township Committee, or Keis & Holroyd, upon payment of $25.00 for each set. Any bidder upon returning such set promptly in good condition will be refunded his payment and any non-bidder upon so returning such set within 30 days of date for receiving bids, will be refunded $20.00.

The Water Commission, Township of Sparta, New Jersey, reserves the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the Township Committee of Township of Sparta, New Jersey, in the amount of 5% of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within 5 days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.

The successful bidder will be required to furnish a Performance Bond satisfactory to the Water Commission of Water District No. One in the Township of Sparta, New Jersey in the amount of the contract and having as surety thereon such surety company or companies as are acceptable to the Township of Sparta, New Jersey.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above postponement thereof.

CHARLES G. BETHEL
CLERK

DATED: December 5, 1955

KEIS & HOLROYD
AND G. R. SOLOMON, ASSOCIATE
Consulting Engineers
Troy, New York

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4584) will be received at Ephrata, Washington, until January 19, 1956, for furnishing labor and materials for Earthwork, Concrete Lateral Lining, and Structures for Part 3, Block 18 Laterals and Wasteways, East Low Canal Laterals, Columbia Basin Project, Washington. Location near Connell, Washington. Principal items are 184,000 c. y. excavation; 650 c. y. concrete in structures; 2,100 c. y. concrete in lateral lining; furnishing and laying 4,070 lin. ft. concrete pipe, 18-inch to 60-inch diameter; furnishing and installing 53 slide gates, sizes 18 x 12-inch to 36-inch diameter; and other work. Completion time 330 days. For particulars, address Bureau of Reclamation, P. O. Box 368, Ephrata, Wash.; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: December 29, 1955

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY
OF INSULATED
WIRE AND CABLE
SPECIFICATIONS NO. PA-5-14012
ST. LAWRENCE CONTRACT NO. P32

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture and furnishing of insulated wire and cable and delivery thereof, f. o. b. cars at destinations, in the following ways:

(1) If brought in person on the day of receiving bids until 10:30 A. M. Eastern Standard Time on the 29th day of December, 1955, Hearing Room C on the 6th Floor, 270 Broadway, New York, New York.

(2) If mailed in until 10:15 A. M. Eastern Standard Time on the 29th day of December, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposals will be publicly opened and read aloud at the time and at the address given in (1) above. Bids will be entertained for the insulated wire and cable in accordance with the bidding schedules. Installation of the wire and cable will be done by Others. Delivery of the insulated wire and cable will be required starting April 1, 1956.

Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall and Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten ($10.00) Dollars for initial set of contract documents and Five ($5.00) Dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids will not be restricted to American manufacturers.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid deposit will be required with each bid in an amount not less than 10 per cent of the maximum price bid for any schedule.

The right is reserved to reject any or all bids.

W. S. Chapin
GENERAL MANAGER

PA-5-14012

Bids: January 10, 1956

Contracts 420, 421 and 438

CONTRACT 420—ELECTRIC LIGHTING EQUIPMENT,
CONTRACT 421—PLUMBING EQUIPMENT
CONTRACT 438—GASOLINE-ENGINE GENERATOR SETS

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, January 10, 1956, for each of Contracts 420, 421 and 438, as follows:

CONTRACT 420, for furnishing, delivering, installing and testing electric lighting equipment, complete in every respect, for the Neversink intake chamber, the Downsville release water chamber, and the East Delaware intake and outlet chambers of the Delaware system, located in the Town of Neversink, Sullivan County, and Town of Colchester, Delaware County, New York.

CONTRACT 421, for furnishing, delivering, installing and testing plumbing equipment and appurtenances for the Neversink intake chamber, located in the Town of Neversink, Sullivan County, New York, and the East Delaware intake and Downsville release water chambers, located in the Town of Colchester, Delaware County, New York.

CONTRACT 438, for installing gasoline-engine generator sets and appurtenances and performing miscellaneous work at the West Branch effluent chamber, located in the Town of Carmel, Putnam County, and at the Kensico South effluent chamber, located near Valhalla, Westchester County, New York.

Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., of each of the three contracts can be obtained in the Chief Clerk's office, Room 1317, at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: January 17, 1956

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m., Eastern Standard Time, the 17th day of January 1956, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

For the construction of structures and the grading, drainage and paving of the Turnpike Section 37J, part of the Northeastern Extension of the Pennsylvania Turnpike in Pittston Township, Luzerne County and the Borough of Moosic, Lackawanna County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 3,490 lineal feet southwest of the centerline of track of the Erie Railroad Branch Line intersection with the centerline of the Turnpike at Turnpike station 1005+00 in Pittston Township, Luzerne County; thence in a northwesterly direction 18,678.02 lineal feet through two equalities to Turnpike station 1344+10 at a point approximately 4,797 lineal feet northwest of the centerline intersection of L. R. 5 and the Turnpike in Moosic Borough, Lackawanna County, a distance of approximately 3.54 miles.

The approximate quantities of the principal items are as follows:

Class I Excavation	1,632,304 cu. yds.
Class 1A Excavation	75,567 cu. yds.
Class 2 Excavation	30,562 cu. yds.
Class 2A Excavation	7,201 cu. yds.
Borrow Excavation	520,203 cu. yds.
Special Subgrade	138,124 cu. yds.
Reinforced Concrete Pavement	90,017 cu. yds.
Class A Concrete	5,642 cu. yds.
Class B Concrete	9,484 cu. yds.
Median Divider	16,218 lin. ft.
Cast-in-Place Concrete Piling	5,270 lin. ft.

Copies of plans, specifications and other contract documents including cross-sections, are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on 21 December 1955. Plans, specifications, cross-sections and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy. Copies of cross sections may be purchased from the Pennsylvania Turnpike Commission for the sum of fifty (50) dollars per set.

Plans and contract documents, exclusive of cross-sections and specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty (20) dollars per each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P.O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
5 December 1955

Bids: January 17, 1956

Boeing Airplane Company

Phase II Preflight Facilities
Moses Lake Flight Center
Moses Lake, Washington

Advertisement for bids previously run in this publication is hereby reinstated. Text of the previous advertisement remains unchanged except dates:

Bids will be opened on January 17, 1956.

Prospective bidders should contact Naramore, Bain, Brady & Johnson, Architects and Engineers, 904 Seventh Avenue, Seattle 4, Washington concerning contract documents.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4588) will be received at Albuquerque, New Mexico, until January 5, 1956, for furnishing labor and materials of Channelization of the Rio Grande, Espanola Area, Espanola to Guique Diversion Dam, Middle Rio Grande Project, New Mexico. Location near Espanola, New Mexico. Principal items are clearing 364 acres along floodway channel and 635,000 cu. yds. excavation for floodway channel. Completion time 150 days. For particulars, address Bureau of Reclamation, P. O. Box 252, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

OFFICIAL PROPOSALS

Bids: December 29, 1955

New Jersey Turnpike Authority

ADVERTISEMENTS FOR PROPOSALS
CONTRACT NO. N-30C

Proposals are invited for Contract No. N-30C which involves the installation of roadway lighting facilities, including two transformer stations, the modification of certain existing lighting facilities, and other incidental work, from the south side of the Holland Tunnel Interchange (Communipaw Avenue Toll Plaza) which is located just south of Communipaw Avenue, to the easterly end of the North Terminal Ramps, including the Left Turn Ramp, at Jersey Avenue, all in Jersey City, Hudson County, and all in connection with the construction of the Newark Bay-Hudson County Extension of the New Jersey Turnpike.

The principal items of work include:

Trenching and Backfilling	4,500 Lin. Ft.
Asbestos-Cement Conduit	4,300 Lin. Ft.
Galvanized Wrought Iron Conduit	650 Lin. Ft.
Series Lighting Conductor	44,800 Lin. Ft.
Lighting Standards & Luminaries	137 Units
Transformer Stations	2 Units

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey until 11:00 O'Clock, Eastern Standard Time on the morning of December 29th, 1955, at which time and place said proposals will be publicly opened and read.

Each bidder must submit with his proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after December 9, 1955, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Ten Dollars ($10.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman.
December 5, 1955.

Bids: January 10, 1956

Contract NYA-650.005

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CENTRAL TERMINAL AREA
ROADS AND BRIDGES

Sealed proposals for the construction of vehicular roads and bridges and the furnishing and installation of utilities for the Central Terminal Area at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, January 10, 1956, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1112. Documents will be furnished upon deposit of $100.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $100.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman
New York, December 15, 1955

Contractors Watch This Section —

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

U. S. Government

GOVERNMENT OF IRAQ. DEVELOPMENT BOARD & MINISTRY OF DEVELOPMENT, BAGHDAD, DIBIS AND BAGHDAD ELECTRIC POWER PROJECTS, CONTRACT NO. 1. Steam Turbine Generators and Appurtenances. The Development Board and the Ministry of Development of the Government of Iraq invite tenders from qualified firms for the supply on site, erection and supervision of operation of five Steam Turbine Generators and appurtenances for Dibis and Badhdad Power Stations, Iraq. Civil Engineering work is not included. Dibis Station will be comprised of three each 15,000 kw turbine-generator sets and Baghdad station will be comprised of two each 20,000 kw turbine-generator sets. Tenderer may submit for each plant separately or for both together. Tender Documents may be inspected on and after 5th December, 1955 until 16 January, 1956 at the following addresses: (1) Directorate General of Legal Affairs and Contracts, Ministry of Development, Development Board Baghdad. (2) Embassies of Iraq, in Washington, London, Paris and New Delhi. (3) Royal Legations of Iraq in Bonn, Brussels, and Rome. (4) Consul Honoraire of Iraq in Stockholm and Egyptian Legations in Bern and the Hague. (5) On appointment, at the office of the Consulting Engineer Messrs. Traction et Electricite-Electrobel, 1 Place du Trone, Brussels. Firms desiring to tender may obtain two copies of the documents (each copy consists of three volumes) for tender on and after 5th December, 1955 until 16 January, 1956 from either the Directorate General of Legal Affairs and Contracts at the Development Board offices, Baghdad, or Messrs. Traction et Electricite-Electrobel, 1 Place du Trone, Brussels, or the above mentioned Embassies and Legations on Payment of twenty five Iraqi Dinars or the equivalent of same. This charge will not be returned to the tenderers. All tender documents is to be submitted in English, and they must be accompanied by a deposit of ID. 11,000 (Eleven thousand Iraqi Dinars) if tender concerns Dibis Plant only or ID. 9,000 (nine thousand Iraqi Dinars) if tender concerns Baghdad Plant only or ID. 20,000 (Twenty thousand Iraqi Dinars) if tender concerns both plants, which must be paid in cash to the Directorate General of Accounts of the Ministry of Development and the receipt issued for such payment must be attached to the Tender Documents. Such cash deposit may be replaced by a letter of guarantee from or through an approved bank in Iraq. Tenders must be submitted in sealed envelop marked in the outside ".....Power Station—Tender For Steam Turbine Generators" the blank will be filled with word Dibis if tender concerns Dibis Power Station only, and with the word Baghdad if tender concerns Baghdad Power Station only and with the words Dibis and Baghdad if tender concerns both Power Stations. They must be delivered at the Ministry of Development on or before 12 noon local time on 13th February, 1956 if sent by post the tenders shall be registered, but tenderers must assure themselves of delivery to the Board by the due time. A letter of Capacity method of procedure, articles of association, are to be submitted with the tender at the same time. Tenders not submitted within the time specified or not accompanied by a receipt of the deposit or a letter of guarantee shall be neglected. The attention of tenderers is called to the fact that early completion of the project is desired, and therefore an early completion date will be considered an important factor in the selection of the successful tenderer. The Development Board does not bind itself to accept the lowest or any tender. Minister of Development.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4585) will be received at Albuquerque, New Mexico, until January 26, 1956, for furnishing labor and materials for Atrisco Feeder Canal, Station (—) 41+12 to Station 495+00, Middle Rio Grande Project, New Mexico. Location near Bernalillo, New Mexico. Principal items are 799,000 cu. yds. excavation; 5,400 cu. yds. backfill; 310 cu. yds. concrete in structures; and other work. Completion time 240 days. For particulars, address Bureau of Reclamation, P. O. Box 252, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

United States Department of Commerce, Bureau of Public Roads, December 15, 1955. SEALED BIDS will be received at the office of the Inter-American Highway Office, Bureau of Public Roads, Room 4009, General Services Building, Washington 25, D. C., until 2:00 p.m., e.s.t., January 19, 1956, for construction of Rama Road Project R-3A in the Republic of Nicaragua. The project begins at Muhan about 23 miles east of Santo Tomas and extends easterly toward Rama for approximately 15 miles. Bidders will be limited to United States or Nicaragua firms with a satisfactory record of performance on highway construction in the United States of America or in the Republic of Nicaragua. The approximate quantities of the major items of work are: 57 Hectares Clearing and Grubbing 707,000 cubic meters Unclassified Excavation, 50,000 cubic meters Selected Borrow Base, 2,400 cubic yards Class "A" Concrete, 322,000 lbs. Reinforcing Steel, 480,000 lbs. Structural Steel and 8,000 linear feet Nestable Bituminous Coated Corrugated Metal Culvert Pipe (from 24" to 72"). Special conditions of work performed by U. S. Government in foreign areas apply as well as local laws. Plans, Specifications and Proposal Forms are available upon request at the address given above, or at the Inter-American Highway District Office, Bureau of Public Roads, 516 Avenida Roosevelt, Managua, Nicaragua. C. D. Curtis, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4587) will be received at Kirwin, Kansas, until January 26, 1956, for furnishing labor and materials for earthwork and structures, Kirwin Main Canal, Station 706+01 to 706+75; Kirwin North Canal, Station 706+75 to end; and Kirwin North Canal Laterals and Drains, for Missouri River Basin Project, Kansas. Location near Gaylord, Kansas. Principal items are 728,000 cu. yds. excavation; 250,000 cu. yds. compacting embankments; 1,720 cu. yds. concrete; 16,000 lin. ft. concrete pipe, 18- to 48-inch; 17,000 pounds metalwork; and other work. Completion time 550 days. For particulars, address Bureau of Reclamation, P. O. Box 317, Kirwin, Kansas; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

POSITION VACANT

ENGINEERS

STRUCTURAL
HIGHWAY
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for work on
Bridges, Expressways, Turnpikes

PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY

PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE

INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

Howard, Needles, Tammen & Bergendoff
55 Liberty St., New York 5, N. Y.

(Additional ads on page 110)

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

Positions Vacant | **Civil Service Opportunities . . .** | **Employment Agencies**
Positions Wanted | **Selling Opportunities Wanted** | **Employment Services**
Part Time Work | **Selling Opportunities Offered** | **Labor Bureaus**

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The advertising rate is $28.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.
Subject to Agency Commission.

$2.10 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.
Box Numbers—counts as 1 line.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.
Not subject to Agency Commission.

Send NEW ADS to ENGINEERING NEWS-RECORD, 330 W. 42nd St., N. Y. 36, N. Y. for January 5th issue closing December 23rd.

ENGINEER

★ ★

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Well established non-defense engineering & construction firm.

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CATERPILLAR TRACTOR CO.

Permanent positions with a progressive Company who offers such excellent employee benefits as life insurance, surgical and hospitalization, retirement and paid vacation programs.

Openings exist in our Engineering, Research, Sales, Service, Plant Engineering and Manufacturing Departments.

Interested people are invited to call in person or write to R. R. Haarlow:

EMPLOYMENT DIVISION
CATERPILLAR TRACTOR CO.
Peoria, Illinois

WANTED

Three top notch men with road construction firm in Midwest.

Superintendent for road construction work. Must have experience in all phases of this work.

Grading foreman with thorough knowledge of all dirt moving operations.

Bridge foreman with experience in building bridges and all kinds of Class X Concrete.

Salary open. **Send letter of qualifications to**

P-8618, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SALES ENGINEERS

A major steel company has need for sales engineers to promote and sell fabricated products in middle Atlantic states. Excellent opportunities for men 25 to 30 years old with engineering background and a desire for sales work. Attractive starting salary with company car, expenses and bonus plan.

P-8324, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED: ASS'T TRAFFIC ENGR.

For traffic engineering department just recently established. Salary range $554 to $670 a month with maximum salary obtainable through annual and longe ity increases. Registratio» as a professional engineer required. Applications accepted until the needs of the service are filled. Write Personnel Department, City Hall, Madison 3, Wis.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Office Manager, for American construction company in Ecuador. General business administration, personnel matters, general and cost accounting, material and equipment control. Latin American experience and Spanish language ability desirable. Airmail full details of experience, personal data, references, and salary rquirements to Apartado 4665, Guayaquill, Ecuador.

Bridge Designers — Civil Engineering graduates of accredited U. S. Schools; at least 4 years experience required on design structural steel and reinforced concrete railroad and highway bridges. Send complete details, education, experience, salary requirements first letter. All applications acknowledged; qualified men will be interviewed. P-8501, Engineering News-Record.

Wanted: Tunnel superintendent and shifters experienced in both heavy earth and rock tunnels. Location: Colorado and Pennsylvania. State age, experience and salary desired. P-8341, Engineering News-Record.

Engineer-Estimator for building construction work in Utah. An engineer for building construction work qualified to estimate and layout all phases of building construction. Please give training, experience and references. P-8465, Engineering News-Record.

Wanted: Bridge & Highway designers with office and field experience by consulting engineering firm in Pennsylvania. Give complete details and salary desired. P-8381, Engineering News-Record.

Estimator — Fully qualified and experienced building estimator to locate in Texas, experienced in preparing estimates on large building projects. Position permanent with excellent opportunity and salary commensurate with ability. Please furnish experience record, training, salary desired, telephone number and address in first response. P-8555, Engineering News-Record.

Recent civil engineer graduate to work for large electric power utility on transmission line layout and design. Experience desired but not essential. Age up to 30. Some travel required. Give resume of education, experience and references. P-8563, Engineering News-Record.

Construction Supt. capable of operating multi-million dollar building projects. Experience on industrial, commercial and institutional buildings required. Kindly submit work history and references, stating specific buildings you have constructed, their approximate value, and type of construction. Also state age and marital status. Enclose recent photograph if possible. Interview will be arranged & salary discussed, if application warrants. Location: North Western Ohio. P-8574, Engineering News-Record.

Electrical engineer, construction, foreign air base project—lines, buildings and utilities. P-8347, Engineering News-Record.

Wanted: Men with Civil Engineering training and/or experience including designers, draftsmen, surveyors and construction inspectors, for permanent employment in Springfield, Missouri with excellent chances for salary advancement and promotion. Starting salaries to depend on training and experience and level of work to which assigned. Contact Personnel Department, City Hall, Springfield, Missouri.

Engineering graduate with concrete and con-crete masonry construction experience for technical and promotional field work in New England. Permanent. Old-established national organization. Reply should include summary of experience and salary requirements. P-8600, Engineering News-Record.

City Engineer—City of Yuba City, California (pop. 10,294) invites applications from California-registered civil engineers. Appointee will be responsible for design, processing and inspection of all municipal projects. Salary open. Closing date—January 15, 1956. Request application forms and complete information from F. K. Dawson, City Administrator, City Hall, Yuba City, California.

General Construction Company, located in the Carolinas with capacity contracts on hand desires capable individual to participate financially and actively in management and ownership. P-8627, Engineering News-Record.

(Continued on page 113)

STRUCTURAL and MECHANICAL DESIGNERS

Having experience with heavy material handling equipment

Permanent Position For Qualified Men

HOSPITALIZATION
INSURANCE
VACATION

Phone or Write
Chief Engineer for interview

THE WELLMAN ENGINEERING CO.

7000 CENTRAL AVE.
Cleveland 4, Ohio
Telephone EN 1-0842

CONSTRUCTION EQUIPMENT ENGINEERS

Graduate engineers with minimum 5 years' experience designing, selecting, specifying and/or supervising operations of construction equipment, such as crawlers, rubber-tired tractors, shovels, cranes, air compressors, welding machines, pumps, mixers, spreaders, fork lifts, etc.

To consult with manufacturers and suppliers on selection and modification of the above-mentioned equipment. For company's Equipment Engineering Division located in New York City. Salary good; liberal benefits.

Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 89

ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE
NEW YORK 22, NEW YORK

WANTED ! !

ESTIMATOR - PURCHASER

Substantial Western building contractor, main office Los Angeles, has exceptional opportunity for man with experience in estimating and purchasing in commercial and industrial work. Permanent position. Reply giving complete qualifications and salary range. Strictly confidential.

P-8619, Engineering News-Record
1111 Wilshire Blvd., Los Angeles 17, Calif.

DESIGN ENGINEERS

PERMANENT OPPORTUNITIES with McKEE

IN OUR REFINERY, METALS OR INDUSTRIAL DIVISIONS AT OUR CLEVELAND, OHIO OFFICES

McKee with more than 50 years of successful operation, doing business all over the world; is one of the largest, oldest and best known engineering and contracting firms in the business. The McKee organization continues to grow and expand, thereby offers many present and future opportunities for qualified and experienced engineers and designers in the following fields:

PIPING
STRUCTURAL STEEL
CONCRETE
PROCESS HEATERS
EQUIPMENT SPECS.
ALSO
ELECTRICAL DRAFTS.
LAYOUT ENGINEERS
PROCESS ENGINEERS

Applicants should have at least five years' of experience.

Here is a rare opportunity for you to utilize your engineering abilities and talents.

McKee offers top compensation commensurate with experience and ability. No age limitations.

Transportation & Moving Allowances

Please Send Resume to:

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ARTHUR G. McKEE & CO.
2300 Chester Ave., Cleveland 1, Ohio

ENGINEERS

Designers Detailers Draftsmen
for work on
Bridges, Expressways, Turnpikes

PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY
PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE
INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

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1805 GRAND AVE. KANSAS CITY 8, MO.

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HIGHWAYS
HIGHWAY STRUCTURES
STEEL MILLS
CERAMIC PLANTS

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Pittsburgh 30, Pa. *Phone Sterling 2-1000*

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A leading engineering and construction company has immediate openings in its Cleveland and New York offices for engineers, group leaders and designers in one or more of the following categories.

ARCHITECTURE

Jr. Designers and designers with industrial design and checking experience

ELECTRICAL

Lighting layouts, controls and power layouts.

STRUCTURAL

Experience in industrial buildings, capable designing structural steel and reinforced concrete with equal facilities.

MECHANICAL

Experience in Process piping, layout and design, heating, ventilating and air conditioning and underground plumbing.

We have openings in all the above classifications in our Cleveland office. Our New York office is also accepting applications from persons qualifying for the Architectural, structural and mechanical positions.

These positions offer long term employment with unlimited opportunities for advancement for individuals who wish to use their engineering training and education as a stepping stone to greater earnings and security; no age limitations.

Top salaries paid for qualified personnel

In addition we offer paid vacation and holidays, sick leave allowance, a group life insurance and hospitalization program and a liberal moving allowance.

Please submit complete resume stating education, experience, salary requirements and date available to:

The H. K. FERGUSON CO.
Engineers and Builders
1783 E. 11th St., Cleveland 14, Ohio
or
19 Rector St., New York 6, N. Y.

DESIGN ENGINEERS
FOR
HIGHWAYS AND BRIDGES

WATER AND SEWAGE TREATMENT
ALSO
DETAILERS AND DRAFTSMEN

Permanent positions with unique benefits for sincere ambitious men—submit educational background, experience record, salary requirements and availability.

GLACE & GLACE, INC.
Consulting Engineers
1001 North Front Street Harrisburg, Penn.

EMPLOYMENT OPPORTUNITIES

HIGHWAY ENGINEERS

OVERSEAS AND DOMESTIC

Applications now being accepted for a limited number of additional openings.

Foreign project located near Bangkok, Thailand requires qualified field engineers and location surveyors with extensive highway experience as construction inspectors, party chiefs or instrumentmen; ages 28 to 45, degree or college background. Bachelor status only; excellent salaries and allowances; free food and lodging.

Openings for draftsmen and junior design engineers in our St. Louis office require young men, preferably with degrees, with one or two years experience. Positions available now offer excellent opportunities for the future.

Field men with highway location experience are invited to inquire regarding openings on survey parties for midwest projects.

Top salaries commensurate with education and experience, plus employee benefit and retirement plan, paid vacations; sick leave and paid holidays. Write for application form.

SVERDRUP & PARCEL ENGINEERING COMPANY
1134 Locust Street **St. Louis 1, Mo.**

INDUSTRIAL ENGINEERS

College graduates with minimum 6 years' work experience in industrial engineering, cost analysis or related activities. To provide industrial engineering services ranging in scope from shop layout to organizational changes in major oil producing operations.

Write, giving full particulars regarding personal history and work experience. Please include your telephone number.

Recruiting Supervisor, Box 93

ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE
NEW YORK 22, N. Y.

CIVIL ESTIMATOR

Large New York engineering and construction firm has staff opening for chief civil estimator. Should be graduate civil engineer with experience in power plant field. Particularly interested in a man with field engineering or construction supervisory experience on hydroelectric developments. Should be capable of heading up civil estimating group. Excellent opportunity for qualified man.

ALSO

COST ENGINEER

Man with technical education preferred and with hydroelectric construction cost experience.

Please submit resume of education, experience and personal data.

P-8534, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS

HIGHWAYS AND BRIDGES

Designers
Draftsmen
Office Engineers
Maintenance Engineers
Project Engineers
Location Engineers
Soils & Materials Engineers

Domestic and Overseas Assignments
Knowledge of Foreign language necessary in some classifications.

Write, giving full particulars concerning education, experience, personal history and availability to:

Richard L. Shaw
Personnel Director

Michael Baker, Jr., Inc.
Consulting Engineers
Baker Building **Rochester, Penna.**

ENGINEERS
and
DRAFTSMEN

Growing company expanding engineering division. Opportunities for rapid advancement into management and development work on TV broadcast antenna towers, industrial buildings, aircraft hangars, mechanical parking garages. Liberal benefits, including retirement. Moving expenses paid.

Write
E. L. Smith
DRESSER-IDECO COMPANY
One of the Dresser Industries
875 Michigan Ave.,
Columbus, Ohio

ENGINEERS, STRUCTURAL

Degree and responsible experience of at least three years structural steel or reinforced concrete on bridges, buildings and other heavy structures. Civil—degree with experience in highway design, hydraulics or drainage and sewer systems. Company paid hospitalization, retirement plan and vacations. Send complete resume and salary requirements to

PALMER & BAKER, INC.
P.O. Box 346 **Mobile, Ala.**

Sheet Metal Superintendent

Capable of estimating and executing large industrial work including supervising shop drawing, hiring qualified mechanics, purchasing material, etc. Large job in mid-west. Reply stating age, salary, experience.

P8587, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS
and
ARCHITECTS

DESIGNERS
PARTY CHIEF

Highway, Bridge,
Schools and Municipal Buildings
Regular Staff Position
Depending on Experience and Ability

CHAS. W. COLE & SON
220 W. LaSalle Ave.
South Bend, Indiana

Fire Protection ENGINEERING

An expanding field with a top-flight organization.

RECENT GRADUATES

Wanted to train as fieldmen. Send personal resume to:

P-8418, Engineering News-Record
330 W. 42nd Street, New York 36, N. Y.

PROJECT MANAGER

OVERSEAS AIRBASE

Must have engineering degree plus extensive background as project manager or project engineer with A-E on multi-million dollar projects. Immediate opening—Rush complete resume.

P-8625, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITION VACANT
(Continued from page 110)

Wanted Earth and Rock Foreman; must be thoroughly experienced in drilling and blasting, and must have not less than five to ten years experience in open cut rock excavation with heavy construction contractors. Permanent position and highest salary for suitable man. Location Pennsylvania or Maryland. State age, experience, recent employers, salary and when available. P-8622, Engineering News-Record.

EMPLOYMENT SERVICE

Salaried personnel. $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, P. O. Box 674, Manchester, Vermont.

POSITIONS WANTED

Industrial Construction Manager. Civil Engr., exper. multi-project supervision. Job-planning & cost-control specialist. 6430 Lemon Ave., Long Beach 5, Calif.

Project Engineer or Superintendent, graduate. 10 years experience—heavy, industrial, refinery construction; dredging and harbor installations; mining and smelter plants, transfer stations, air field construction. Prefer foreign assignment. Available immediately. PW-8565, Engineering News-Record.

Civil Engineer, 26, BSCE, completing 3 yrs. commissioned service, USN Civil Engr. Corps. 3 yrs. experience in plant maintenance and administration, 1½ yrs. in aircraft experimental project. Available 30 March. West preferred. PW-8436, Engineering News-Record.

Civil Engineer B.S. Degree age 27 seeks overseas position 3 years experience in highway, bridge construction, hydraulics and dredging. Working at present with a large construction company in Venezuela. Speak and write Spanish and English fluently. Available immediately. PW-8479, Engineering News-Record.

Surveyor, Lic. N. Y. and N. J. desires position southern counties N. Y. or Northern N. J. PW-8557, Engineering News-Record.

Wanted — By construction supt. or gen. foreman 30 years experience, all types dirt moving with heavy equipment, bridge piers, sewers & water lines. PW-8577, Engineering News-Record.

Executive Engineer — supt. licensed P.E., designer with consultant experience and intimate knowledge of trades. Desires position with expanding organization interested in accelerating their work. Willing to assume full responsibility. PW-8576, Engineering News-Record.

Operator, Mechanic, instructor—heavy equipment age 33. Sober, honest. Willing to assume responsibility. Recent instructor, school for heavy equipment operators. Forestry, custom farm, building trades, heavy, highway & pipeline experience. Desires responsible employment as instructor, operator, maint. or allied field. Worked most in Pa. & Conn. D. Peffley Rt. 5 Box 713 Charlotte, N. C.

Construction Superintendent: Commercial & Industrial Bldgs. Hospitals, schools, housing projects, churches etc. Over 25 years experience. Desires similar position with reliable organization. Prefer near New Jersey. PW-8591, Engineering News-Record.

Available immediately construction engineer (Electrical) for overseas 44, single, 6 years experience design and inspection heavy construction and buildings. PW-8594, Engineering News-Record.

SELLING OPPORTUNITY WANTED

Washington representative with successful record of achievement in dealing with various agencies of government. Experienced in construction, finance, and legislation. RA-8607, Engineering News-Record.

EXPRESSWAYS

ENGINEER, seasoned executive in charge important projects will consider change with opportunity via salary, participation or joint venture.

PW-8585, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

SEARCHLIGHT SECTION

(Classified Advertising)

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UNDISPLAYED —RATES— *DISPLAYED*

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DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

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EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

Send NEW ADVERTISEMENTS to N. Y. Office, 330 W. 42nd St., N. Y. 36, N. Y. for January 5th issue closing December 23rd

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

BUSINESS OPPORTUNITY

For Sale or Lease, the only Machine Shop located in a Northern Michigan City of 3,000 population, established 1936, including well known truck distributorship for 6 counties in Upper Michigan. New building fronting on main highway with lake in rear, suitable for dock development. BO-8626, Engineering News-Record.

WANTED

Anything within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

FOR SALE BY ESTATE
LICENSES TO MANUFACTURE PATENTED HIGHWAY GUARD RAIL
In States of California, Texas, Virginia and District of Columbia. For information write to:
GUARANTY TRUST COMPANY OF NEW YORK, *Executor*
524 Fifth Avenue, New York 36, N. Y.
Attention: Personal Trust Department

Engineers—Foremen—Office Men
Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.
GEO. E. DEATHERAGE & SON CONSTRUCTION CONSULTANTS
P.O. Box 921 Lake Worth, Florida

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-third year.
WILSON *Engineering Corp*
Home Study Office HARVARD SQ. CAMBRIDGE MASS.

NOTICE to ADVERTISERS
Because of the Holiday, New Year's Day, January 1st, the "Searchlight" pages of the
January 5th Issue of ENGINEERING NEWS-RECORD
Close for press earlier than the usual weekly closing time.
The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.
Display and Undisplayed Ads
FINAL CLOSING TIME
Friday, December 23rd
PROPOSALS
Thursday, December 29th

FOR SALE or RENT
ONE #0 VULCAN PILE HAMMER
Special 9½x30" Jaws
Excellent Condition—Real Bargain
FS-7826, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

CLAMSHELL BUCKETS
3 yd. Owen wide rehandling — $2100. Used one month—new cost $3500.
2 yd. Owen general purpose # M248. $1500. Rebuilt. New—cost $2500.
2 yd. Hayward rehandling—$900.
PARKER-PARKINSON INC.
519 N. Delaware Ave., Philadelphia, Pa.

— MAKE AN OFFER —
Two (2) used LaPlant Choate Model C-104 "Carrimor" Scrapers—25 cu. yds. struck—33 cu. yds. heaped. Also one spare tire and extra parts for each scraper.
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Peoria, Ill. — Phone 2-5485

FOR RENT OR SALE
LORAIN MC-524 30 ton Motocrane
with 100' boom, 25' jib. Used only 6 months in 90% new condition.
FOB New York City.....$34,500.00
GERL CONSTRUCTION CO.
23600 Lakeland Blvd., Cleveland 23, Ohio
Tel: REdwood 1-0077 R. Snyder Willoughby 2-2821

FOR SALE
CONCRETE HOUSE FORM ON WHEELS
Will pour 2 or 3 bedroom house including inside partitions. Outside dimensions 39.3 x 25.8. Complete with diesel tractor to move same. Reasonable.
PFOHL BROS., INC.
144 Pfohl Rd., Tel. PLaza 1020 Buffalo 25, N. Y.

WANTED
(Additional Wanted Advertisement on page 117)

WANTED
2½ yd. to 4 yd. rehandling Clamshell bucket. State price, age and location.
SERODINO, INC.
8176 Vine St. Cincinnati 16, Ohio

WANTED
BACK HOE ATTACHMENT Northwest 80-D
and
LINK BELT K-360
also Caterpiller 80 SCRAPERS
***Write:* The National Engineering Co., Ltd.**
Haifa, Israel ***or cable:* Nateng Israel**

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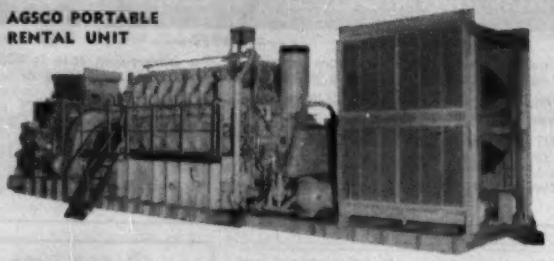
125 KVA to 1420 KVA RENTAL or PURCHASE



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TRACTORS—5-D-8's—2 U—16000 Series Top Condition with New or Near New Tracks and
SCRAPERS—5 Cat. 80's and La Tourneau (HD-20 G Front Leader—4½ Cu. Yd.)
NORTHWEST—80 D Shovel—Late Model—No. 25 Combination Shovel—Crane—Clam
MANITOWOC—4500—140 Ft. Boom—7 Yd.—5 Yd. Buckets
EUCLIDS—3—15 Ton End Dumps
EUCLIDS—12—7½ FDT Bottom Dumps
EUCLIDS—10—43 FDT Bottom Dumps. All Ready to Work—30 to 90 Days Use Since Rebuilt
TRACTORS—2—TD-18's with Power Unit and Push Block
2—HD-20's with Power Unit and Push Block
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Contact MR. ROBERT B. CLEARY

A. L. DOUGHERTY CO. *Contractors*
839 So. Pearl St., Albany, New York Tel - 32435
10111 So. Torrence Ave., Chicago, Ill.
Tel - Essex 5-7676

BLAW-KNOX
CANTILEVER SPEED FORMS

Designed for wooden lagging

Used only in construction of Shepaug Dam

Five Foot Sections

174 Pcs.	A-1	10'	Wide
2 Pcs.	C-1	6'6"	Wide
5 Pcs.	D-1	3'	Wide

Seven Foot Sections

60 Pcs.	B-2	10'	Wide
2 Pcs.	B-1	9'	Wide
4 Pcs.	C-2	6'6"	Wide
5 Pcs.	D-2	3'	Wide

UNITED ENGINEERS & CONTRUCTORS INC.

Agents of The Connecticut Light & Power Co.
Post Office Box 718
Sandy Hook, Connecticut
Phone—Woodbury - Congress 4-8221

One (1) used Northwest 80-D Shovel, S/N 12636.

One (1) Model 75 Link Belt Crane/Dragline S/N 1-E-906

One (1) P&H Model 255-A Crane/Dragline S/N 6724

One (1) Lorain Model L-50 Shovel/Crane/Dragline S/N 20970

One (1) Link Belt Model LS-52 Crane/Dragline S/N 6-G-F-451

One (1) Model 304 Koehring Crane/Dragline Complete with Backhoe Attachment S/N 5011

Fehrs Tractor & Equipment Co.
1809 Cuming St. Omaha 2, Neb.

DERRICK CAR

All steel; with 50' and 90' booms; 50 tons @ 40' Rad. and 10 tons @ 85' Rad. 60'x8' Ver. boiler (new 1945) oil fired; with oil and water storage tanks; with outriggers; 50' long; Stan. clearance; 3 drum Mundy Hoist 8½"x13"; Mead Morrison 2 drum 8"x10"; self propelled; App. Wt. 100 tons; West. Comp. air Com. and receiver; Stan. gauge; A frame raise and lower by power to Stan. clearance for height; Inspect under power. Photographs available upon request.

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24th & Hayes Ave., Camden 5, N. J.

STRUCTURAL STEEL

New and Used

HEAVY SECTIONS

• *OUR SPECIALTY* •
BEAMS - PLATES - BEARING PILES
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REINFORCING BARS

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SUBJECT TO PRIOR SALE

1—Lorain self-propelled rubber tired moto-crane Model SP-414 with 30 ft. boom.
1—Lorain Moto-Crane Model MC 414 with 60 ft. boom.
1—Link belt speeder model LS-71 with ¾ yd. shovel front, backhoe and 30 ft. boom. Cat Power
1—Lorain TL-25 Backhoe 38" bucket cat power rebuilt

Powered Equipment Corp.
130 Needham St.
Newton Highlands, Mass.

FASTER & CHEAPER
COMPACTION IN ALL SOILS
BY ADMIXTURE
BACKFILL TRENCHES, STRUCTURE-BACK-FILL BRIDGES, FREEWAYS, AIRSTRIPS
For Information Call: WHitecliff 8-5900
COMPACTION ENGINEERING CO.
One First St. Los Altos, Calif.

FOR SALE

One 25 Ton 3 Sheave Steel Stiff-leg Derrick 38' Mast 85' Boom & Bull Wheel

PRICE $2500.

ABERTHAW COMPANY
133 Southampton St. Boston, Mass.
Tel. Highlands 5-6700

SEARCHLIGHT SECTION

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P & H HEAVY DUTY 2 YD. SHOVEL

On 2½ yd. Base

CAT. D-17000 Engine

RECONDITIONED

Ready to go.

$20,000.00

SERVICE SUPPLY CORPORATION

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Phone: BAldwin 9-1950

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NEW DOMESTIC STEEL ANGLES

IMMEDIATE SHIPMENT FROM WAREHOUSE

Quantity	Size
10,000 lbs.	3/4" x 3/4" x 1/8" x 20'
6,000 lbs.	1 1/4" x 1 1/4" x 1/4" x 20'
6,000 lbs.	2 x 1 1/2 x 1/8 x 30'/40'
44,000 lbs.	3 x 2 x 3/8 x 15'/35'
18,000 lbs.	3 x 2 x 5/16 x 15'/65'
30,000 lbs.	3 x 2 1/2 x 3/8 x 15'/65'
8,000 lbs.	3 x 2 1/2 x 5/16 x 20'/40'
12,000 lbs.	3 1/2 x 2 1/2 x 3/8 x 15'/40'
12,000 lbs.	3 1/2 x 2 1/2 x 15'/40'
18,000 lbs.	3 1/2 x 2 1/2 x 5/16 x 20'/50'
16,000 lbs.	3 1/2 x 3 x 3/8 x 15'/40'
8,000 lbs.	3 1/2 x 3 x 1/2 x 15'/40'
12,000 lbs.	3 1/2 x 3 x 5/16 x 15'/20'
58,000 lbs.	3 1/2 x 3 1/2 x 3/8 x 15'/60'
8,000 lbs.	3 1/2 x 3 1/2 x 1/2 x 15'/45'
33,000 lbs.	4 x 3 x 1/2 x 15'/45'
7,000 lbs.	4 x 3 1/2 x 3/8 x 15'/40'
8,000 lbs.	4 x 3 1/2 x 1/2 x 15'/40'
10,000 lbs.	4 x 4 x 1/2 x 10'/30'
10,000 lbs.	4 x 4 x 7/16 x 10'/45'
15,000 lbs.	5 x 5 x 1/2 x 10'/50'
16,000 lbs.	6 x 6 x 1/2 x 10'/60'
11,000 lbs.	6 x 6 x 3/8 x 10'/60'
14,000 lbs.	6 x 6 x 5/8 x 10'/40'
14,000 lbs.	6 x 6 x 9/16 x 30'/40'

SPECIAL PRICES CARLOAD LOTS

Write—Wire—Phone

SONKEN-GALAMBA CORPORATION

2nd & Riverview (X-261) Kansas City 18, Kansas

ATwater 9305

FOR SALE or RENT

200 ton American Guy Derrick 160' Bm.
12x14 American #250, 3D Steam Hoist.
25 ton American Stiffleg Model 846.
140 HP 2D Diesel Hoists 15000# SLP.
100 HP Lucey Portable Boilers. 200# WP.
50 ton American Diesel Loco. Crane 1947.
25 ton Ind. Brownhoist No. 5 Diesel Loco. Crane. New 1942.
80 ton Whitcomb Diesel Elec. Loco. 1943.
44 ton GE Diesel Elec. Loco. 1948.
¾ yd Bucyrus 22B Crane-Backhoe 1952.
2½ yd Manitowoc 3500 Diesel Crane.
2½ yd Koehring 1005 Diesel Crane 1952.
60 ton American R-25 Elec. Revolver.
10 ton Unit Mobile Crane Model 1020 12 Tires. New 1946.

MISSISSIPPI VALLEY EQUIPMENT CO.

509 Locust St. St. Louis 1, Mo.

2400 Hi Lift - 4500 Manitowoc

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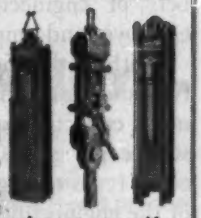

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Editorials

Organizing Engineering Employees

PROFESSIONAL ENGINEERING EMPLOYEES are to be the object of two drives to organize them for collective-bargaining purposes, one conducted under the auspices of the merged AFL and CIO, and one by the Engineers and Scientists of America (ENR Nov. 17, p.104). That either of these drives will have any major effect on men employed at the professional level in the field of civil engineering appears improbable in the light of past experience.

Since 1918 the AFL has had a union for architectural and engineering employees—now known as the American Federation of Technical Engineers—which never succeeded in signing up many men above the subprofessional level. About 20 years ago the CIO took in the Federation of Architects, Engineers, Chemists and Technicians and financed a drive for new members that met with some success. But membership soon fell off and that organization was merged with the United Office and Professional Workers of America. Here again few men in professional classifications joined.

Some of the organizations now in the independent Engineers and Scientists of America had their origin in the civil engineering field, but the great bulk of its present membership comes from the manufacturing field, chiefly airplane companies employing large numbers of engineers where personal contact between employer and employee is practically nonexistant.

Within the field of civil engineering, there are two situations that could aid the drives to organize more collective-bargaining groups: the failure of civil service pay scales to keep in line with pay scales in other types of engineering work, and the increased size of the engineering staffs of public construction agencies and of many consulting-engineering firms. But while the existence of these situations could cause more subprofessionals to join one of the unions of the new AFL-CIO, they should have little effect at professional levels. At that level, especially in public agencies, the ESA, with its more conservative approach to collective bargaining, will continue to have more appeal.

Guidance for Students

ONE OF THE OBJECTIVES set up for the nation's schools at the White House Conference on Education was "an effective program of guidance and counselling in preparation for the world of work." That is an area in which the engineering profession can be justly proud of what it has accomplished, largely through the medium of Engineers Council for Professional Development. Under the sponsorship of the ECPD Guidance Committee valuable guidance material has been developed, and in many communities the local engineering groups now hold guidance clinics for high school students each year with very gratifying results.

The one major need in this area, from the viewpoint of interesting more young people in engineering, is for more effective use of the available guidance material. Especially is this the case in smaller cities and towns where engineers have no local organization, and where, as a consequence, the need for engineer-student contacts is most pressing. Meeting that need calls for initiative on the part of individual engineers willing to give some time to helping local high-school counsellors.

Geology and Civil Engineering

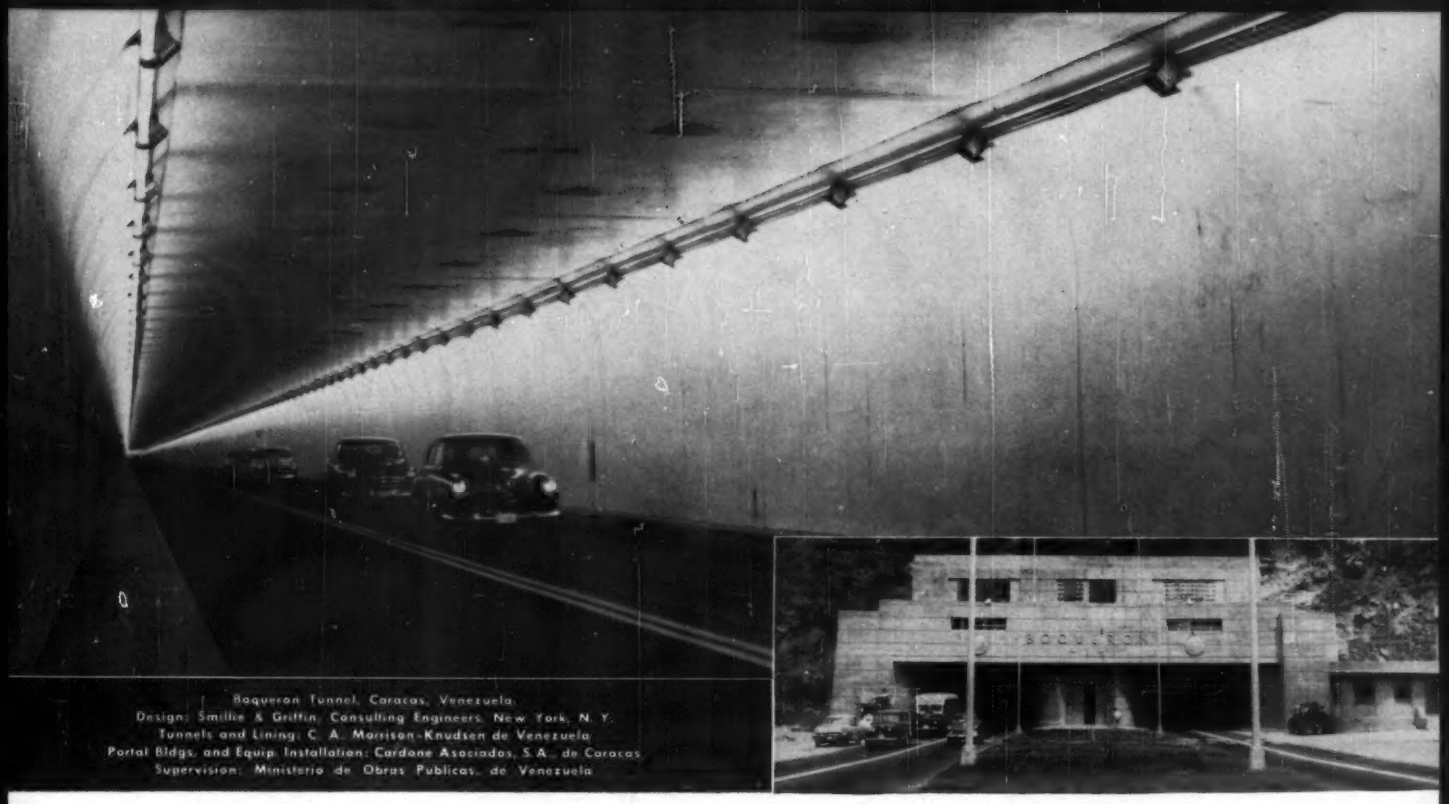
UNDER THE NECESSITY of getting things done quickly, civil engineers sometimes forget that their practice involves the application of the results of many sciences. Correspondingly, the pressure which always exists on construction jobs makes it all too easy to forget that civil engineering operations often yield information of unusual scientific value to others. This is particularly true of geological information which may be revealed by excavations or by test borings. Ever since the riddle of the Rhine graben was solved by geological observations made in the railway tunnel at Freiburg, there has been a growing appreciation by geologists of the links which there can and should be between their work and civil engineering construction.

This liaison was again demonstrated at the recent annual meeting of the Geological Society of America held in New Orleans. The main general session of this meeting of one of the country's outstanding scientific societies was featured by a group of papers describing in detail the geology of the lower Mississippi Valley. Those who know this region only as a flat, low-lying delta area would have been surprised at the detail in which the underlying geology is now understood, geology which was vividly displayed to an audience of one thousand and by an outstanding team of speakers.

This geological picture has been developed from the results of the many tens of thousands of test borings which have been sunk in the New Orleans region, both for civil engineering operations and in the search for oil. The extension of this work, using the new technique of radio-carbon data of organic material retrieved from bore holes, has given further confirmation to stratigraphic results which were already being aided by the additional technique provided by soil mechanics.

Admittedly, the situation at New Orleans is unusual, but civil engineers generally may usefully be reminded by this meeting of the possible value of observations on all their construction work if correlated with local goelogy. Both the practice of engineering and the science of geology have much to gain and nothing to lose by such cooperative endeavor.

In Venezuela's Mile-Long Boqueron Tunnel...



Boqueron Tunnel, Caracas, Venezuela.
Design: Smillie & Griffin, Consulting Engineers, New York, N. Y.
Tunnels and Lining: C. A. Morrison-Knudsen de Venezuela
Portal Bldgs. and Equip. Installation: Cardone Asociados, S.A., de Caracas
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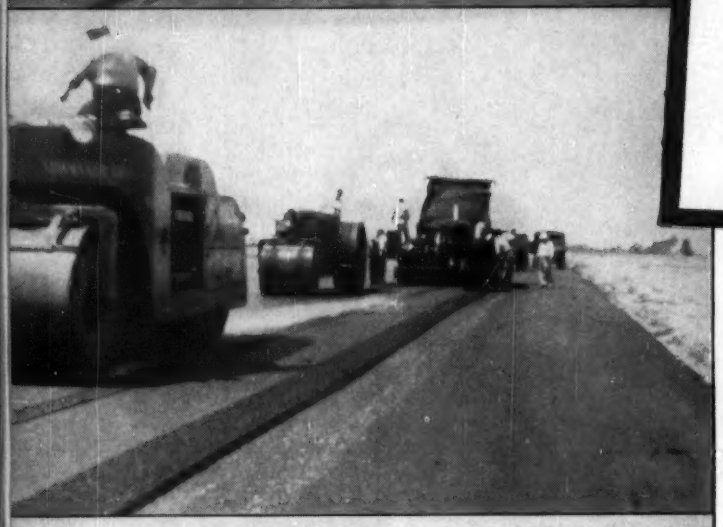

Constructing hot-mix, heavy-duty Texaco Asphaltic Concrete pavement on runway of Hulman Municipal Airport, Terre Haute, Ind., new home of the jet-driven planes of Indiana's Air National Guard.

What type pavement for Airports?

Hulman Municipal Airport at Terre Haute, Ind., new home of that State's Air National Guard, recently completed some major improvements. The old 5300-foot east-west runway was extended to 7900 feet and a new 7000 foot taxiway was added.

The same resilient, all-flexible type of construction was used for both runway and taxiway. A hot-mix Texaco Asphaltic Concrete surface, three inches thick, was laid over a 9-inch waterbound macadam base and a 9-inch stabilized gravel sub-base.

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